

Grade 4 Foundation Workbook

24 lessons · printable · answer key at the back

Name _____

Date _____

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Place Value in Four-Digit Numbers

WORKED EXAMPLE

3546 → 40

1. The value of a digit

Write what the underlined digit is worth.

1 7723 → _____

2 4627 → _____

3 7264 → _____

4 2835 → _____

5 7131 → _____

6 3983 → _____

7 7476 → _____

8 5893 → _____

9 3945 → _____

10 9797 → _____

11 2258 → _____

12 5341 → _____

13 5744 → _____

14 4585 → _____

15 4579 → _____

16 7943 → _____

17 8386 → _____

18 3522 → _____

19 5156 → _____

20 8995 → _____

21 3725 → _____

22 4568 → _____

23 5857 → _____

24 7791 → _____

2. Writing expanded form

Write each number in expanded form.

25 1691 = _____

26 5767 = _____

27 6267 = _____

28 1581 = _____

29 8807 = _____

30 8888 = _____

31 7968 = _____

32 8573 = _____

33 6372 = _____

34 7229 = _____

35 6759 = _____

36 6296 = _____

37 3509 = _____

38 3120 = _____

39 7678 = _____

40 6360 = _____

41 2289 = _____

42 7485 = _____

43 1629 = _____

44 8104 = _____

45 7231 = _____

46 5269 = _____

47 6346 = _____

Rounding to the Nearest Ten

WORKED EXAMPLE

$$819 \approx \underline{820}$$

3. Rounding numbers

Round each number to the nearest 10.

- | | | | |
|------------------------|------------------------|------------------------|------------------------|
| 1 713 $\approx$ _____ | 2 172 $\approx$ _____ | 3 72 $\approx$ _____ | 4 17 $\approx$ _____ |
| 5 947 $\approx$ _____ | 6 751 $\approx$ _____ | 7 74 $\approx$ _____ | 8 21 $\approx$ _____ |
| 9 305 $\approx$ _____ | 10 539 $\approx$ _____ | 11 531 $\approx$ _____ | 12 327 $\approx$ _____ |
| 13 303 $\approx$ _____ | 14 311 $\approx$ _____ | 15 82 $\approx$ _____ | 16 589 $\approx$ _____ |
| 17 639 $\approx$ _____ | 18 499 $\approx$ _____ | 19 716 $\approx$ _____ | 20 675 $\approx$ _____ |
| 21 491 $\approx$ _____ | 22 542 $\approx$ _____ | 23 147 $\approx$ _____ | 24 963 $\approx$ _____ |
| 25 126 $\approx$ _____ | 26 957 $\approx$ _____ | 27 304 $\approx$ _____ | |

4. Estimating a sum

Round each number to the nearest ten, then add.

- | | | |
|------------------------------|------------------------------|------------------------------|
| 28 126 + 191 $\approx$ _____ | 29 161 + 235 $\approx$ _____ | 30 126 + 422 $\approx$ _____ |
| 31 133 + 532 $\approx$ _____ | 32 112 + 862 $\approx$ _____ | 33 133 + 323 $\approx$ _____ |
| 34 105 + 147 $\approx$ _____ | 35 161 + 224 $\approx$ _____ | |

5. Estimating a difference

Round each number to the nearest ten, then subtract.

- | | | |
|------------------------------|------------------------------|------------------------------|
| 36 196 - 191 $\approx$ _____ | 37 245 - 213 $\approx$ _____ | 38 301 - 125 $\approx$ _____ |
| 39 182 - 136 $\approx$ _____ | 40 413 - 213 $\approx$ _____ | 41 133 - 114 $\approx$ _____ |
| 42 406 - 301 $\approx$ _____ | 43 231 - 169 $\approx$ _____ | |

6. Estimating a product

Round each number to the nearest ten, then multiply.

- | | | |
|-----------------------------------|-----------------------------------|-----------------------------------|
| 44 41 $\times$ 25 $\approx$ _____ | 45 62 $\times$ 11 $\approx$ _____ | 46 83 $\times$ 46 $\approx$ _____ |
| 47 44 $\times$ 53 $\approx$ _____ | 48 62 $\times$ 74 $\approx$ _____ | 49 14 $\times$ 11 $\approx$ _____ |
| 50 47 $\times$ 81 $\approx$ _____ | 51 47 $\times$ 53 $\approx$ _____ | |

Column Addition and Subtraction

WORKED EXAMPLE

$$\begin{array}{r} 582 \\ - 470 \\ \hline 112 \end{array}$$

7. Add and subtract multi-digit numbers

Add or subtract. Work down the columns, and check the sign first.

$$\begin{array}{r} 1 \quad 284 \\ + 201 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 678 \\ - 339 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \quad 932 \\ - 851 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 474 \\ - 357 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 282 \\ + 179 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 160 \\ + 437 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 973 \\ - 276 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \quad 364 \\ - 254 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \quad 250 \\ - 107 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \quad 273 \\ + 421 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \quad 765 \\ - 677 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \quad 597 \\ - 432 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \quad 327 \\ + 253 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \quad 870 \\ - 463 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \quad 612 \\ - 482 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \quad 588 \\ - 211 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \quad 441 \\ - 341 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 910 \\ - 557 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 141 \\ + 377 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 538 \\ - 213 \\ \hline \end{array}$$

Multiplying Two Digits by One

WORKED EXAMPLE

$$\begin{array}{r} 35 \\ \times 5 \\ \hline 175 \end{array}$$

8. Multiply multi-digit numbers

Multiply. Show your working.

$$\begin{array}{r} 1 \quad 34 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 71 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \quad 77 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 13 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 11 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 85 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 80 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \quad 15 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \quad 56 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \quad 49 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \quad 91 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \quad 11 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \quad 74 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \quad 53 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \quad 57 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \quad 75 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \quad 43 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 67 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 31 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 13 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \quad 36 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \quad 37 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \quad 10 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \quad 21 \\ \times 4 \\ \hline \end{array}$$

9. The value of a digit

Write what the underlined digit is worth.

$$25 \quad 49\underline{7}0 \rightarrow \underline{\hspace{2cm}}$$

$$26 \quad 48\underline{5}6 \rightarrow \underline{\hspace{2cm}}$$

$$27 \quad \underline{8}345 \rightarrow \underline{\hspace{2cm}}$$

$$28 \quad 16\underline{2}4 \rightarrow \underline{\hspace{2cm}}$$

$$29 \quad 447\underline{6} \rightarrow \underline{\hspace{2cm}}$$

$$30 \quad 347\underline{9} \rightarrow \underline{\hspace{2cm}}$$

$$31 \quad \underline{8}515 \rightarrow \underline{\hspace{2cm}}$$

$$32 \quad 195\underline{9} \rightarrow \underline{\hspace{2cm}}$$

$$33 \quad 823\underline{4} \rightarrow \underline{\hspace{2cm}}$$

$$34 \quad 91\underline{9}4 \rightarrow \underline{\hspace{2cm}}$$

Multiplying Three Digits by One

WORKED EXAMPLE

$$\begin{array}{r} 198 \\ \times 8 \\ \hline 1584 \end{array}$$

10. Multiply multi-digit numbers

Multiply. Show your working.

$$\begin{array}{r} 1 \quad 719 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 760 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \quad 395 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 104 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 157 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 497 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 219 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \quad 537 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \quad 573 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \quad 391 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \quad 903 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \quad 328 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \quad 113 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \quad 433 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \quad 274 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \quad 287 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \quad 744 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 807 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 230 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 587 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \quad 225 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \quad 193 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \quad 334 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \quad 161 \\ \times 5 \\ \hline \end{array}$$

11. Estimating a sum

Round each number to the nearest ten, then add.

$$25 \quad 126 + 114 \approx \underline{\quad}$$

$$26 \quad 112 + 279 \approx \underline{\quad}$$

$$27 \quad 112 + 598 \approx \underline{\quad}$$

$$28 \quad 161 + 301 \approx \underline{\quad}$$

$$29 \quad 154 + 114 \approx \underline{\quad}$$

$$30 \quad 105 + 323 \approx \underline{\quad}$$

$$31 \quad 119 + 334 \approx \underline{\quad}$$

$$32 \quad 133 + 136 \approx \underline{\quad}$$

$$33 \quad 161 + 169 \approx \underline{\quad}$$

$$34 \quad 112 + 158 \approx \underline{\quad}$$

Multiplying Two Digits by Two

WORKED EXAMPLE

$$\begin{array}{r}
 47 \\
 \times 32 \\
 \hline
 94 \\
 1410 \\
 \hline
 1504
 \end{array}$$

12. Multiply multi-digit numbers

Multiply. Show your working.

$$\begin{array}{r}
 1 \quad 11 \\
 \times 99 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2 \quad 56 \\
 \times 18 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3 \quad 30 \\
 \times 61 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4 \quad 34 \\
 \times 43 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 5 \quad 29 \\
 \times 11 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 6 \quad 18 \\
 \times 14 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 7 \quad 42 \\
 \times 61 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 8 \quad 40 \\
 \times 38 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 9 \quad 63 \\
 \times 21 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 10 \quad 33 \\
 \times 40 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 11 \quad 67 \\
 \times 36 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 12 \quad 10 \\
 \times 19 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 13 \quad 12 \\
 \times 95 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 14 \quad 35 \\
 \times 86 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 15 \quad 18 \\
 \times 63 \\
 \hline
 \end{array}$$

13. Rounding numbers

Round each number to the nearest 10.

16 **337** $\approx$ _____

17 **141** $\approx$ _____

18 **352** $\approx$ _____

19 **914** $\approx$ _____

20 **526** $\approx$ _____

21 **694** $\approx$ _____

22 **529** $\approx$ _____

23 **325** $\approx$ _____

24 **309** $\approx$ _____

25 **305** $\approx$ _____

Division with Remainders

WORKED EXAMPLE

$$34 \div 4 = \underline{8} \text{ R } \underline{2}$$

14. Division with remainders

Divide. Write the quotient and the remainder.

- | | | |
|---|---|---|
| 1 $31 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$ | 2 $32 \div 3 = \underline{\quad} \text{ R } \underline{\quad}$ | 3 $44 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 4 $29 \div 9 = \underline{\quad} \text{ R } \underline{\quad}$ | 5 $26 \div 3 = \underline{\quad} \text{ R } \underline{\quad}$ | 6 $27 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 7 $55 \div 9 = \underline{\quad} \text{ R } \underline{\quad}$ | 8 $23 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$ | 9 $18 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 10 $29 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 11 $59 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$ | 12 $17 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 13 $31 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 14 $43 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 15 $26 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 16 $13 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 17 $33 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$ | 18 $60 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 19 $17 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$ | 20 $10 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$ | 21 $39 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 22 $14 \div 3 = \underline{\quad} \text{ R } \underline{\quad}$ | 23 $31 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$ | 24 $31 \div 3 = \underline{\quad} \text{ R } \underline{\quad}$ |

15. Word problems: dividing

Read each problem. Write the answer.

- 25 6 notebooks are arranged in 2 rows, with the same number in every row.

How many notebooks stand in one row?

- 26 32 croissants are arranged with 8 in each row. Dev also keeps 5 cupcakes.

How many rows does that make?

- 27 Jordan set out 54 books in rows of 6.

How many rows are there?

- 28 Lucia packed 15 croissants into trays of 5.

How many trays did Lucia fill?

Long Division

WORKED EXAMPLE

$$\begin{array}{r} 31 \\ 4 \overline{)124} \\ \underline{12} \\ 4 \\ \underline{4} \\ 0 \end{array}$$

16. Long division

Divide. Show your working.

$$\begin{array}{l} 1 \quad 6 \overline{)330} \quad 2 \quad 9 \overline{)279} \quad 3 \quad 3 \overline{)411} \quad 4 \quad 4 \overline{)260} \quad 5 \quad 5 \overline{)245} \quad 6 \quad 2 \overline{)224} \end{array}$$

$$\begin{array}{l} 7 \quad 7 \overline{)525} \quad 8 \quad 2 \overline{)270} \quad 9 \quad 3 \overline{)231} \quad 10 \quad 4 \overline{)200} \quad 11 \quad 5 \overline{)560} \quad 12 \quad 2 \overline{)262} \end{array}$$

17. Add and subtract multi-digit numbers

Add or subtract. Work down the columns, and check the sign first.

$$\begin{array}{r} 13 \quad 372 \\ + 117 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \quad 731 \\ - 321 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \quad 958 \\ - 374 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \quad 476 \\ - 277 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \quad 136 \\ + 124 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 360 \\ - 330 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 914 \\ - 311 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 160 \\ + 453 \\ \hline \end{array}$$

Long Division with Remainders

WORKED EXAMPLE

$$\begin{array}{r} 54 \\ 5 \overline{)274} \\ \underline{25} \\ 24 \\ \underline{20} \\ 4 \end{array}$$

18. Long division with remainders

Divide. Give the quotient and the remainder.

$$\begin{array}{l} 1 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 2 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 3 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 4 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 5 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 6 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} \\ 5 \overline{)126} \quad 9 \overline{)115} \quad 5 \overline{)478} \quad 6 \overline{)129} \quad 5 \overline{)333} \quad 9 \overline{)277} \end{array}$$

$$\begin{array}{l} 7 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 8 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 9 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 10 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 11 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} 12 \quad \quad \quad \underline{\quad} \text{ R } \underline{\quad} \\ 9 \overline{)469} \quad 7 \overline{)268} \quad 8 \overline{)165} \quad 4 \overline{)191} \quad 4 \overline{)494} \quad 6 \overline{)187} \end{array}$$

19. Multiply multi-digit numbers

Multiply. Show your working.

$$\begin{array}{r} 13 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \\ \times 16 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ \times 77 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \\ \times 53 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \\ \times 14 \\ \hline \end{array}$$

WORKED EXAMPLE

 $6 \rightarrow \underline{1, 2, 3, 6}$ **20. List the factors**

List all the factors of each number.

- 1 $19 \rightarrow$ _____
- 2 $2 \rightarrow$ _____
- 3 $39 \rightarrow$ _____
- 4 $23 \rightarrow$ _____
- 5 $25 \rightarrow$ _____
- 6 $5 \rightarrow$ _____
- 7 $33 \rightarrow$ _____
- 8 $9 \rightarrow$ _____
- 9 $37 \rightarrow$ _____
- 10 $3 \rightarrow$ _____
- 11 $26 \rightarrow$ _____
- 12 $7 \rightarrow$ _____
- 13 $31 \rightarrow$ _____
- 14 $8 \rightarrow$ _____
- 15 $13 \rightarrow$ _____
- 16 $17 \rightarrow$ _____
- 17 $4 \rightarrow$ _____
- 18 $34 \rightarrow$ _____
- 19 $29 \rightarrow$ _____
- 20 $11 \rightarrow$ _____
- 21 $22 \rightarrow$ _____
- 22 $12 \rightarrow$ _____
- 23 $15 \rightarrow$ _____
- 24 $27 \rightarrow$ _____

21. Division with remainders

Divide. Write the quotient and the remainder.

25 $15 \div 2 = \underline{\quad} \text{ R } \underline{\quad}$

26 $20 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$

27 $47 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$

28 $13 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$

29 $19 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$

30 $17 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$

31 $37 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$

32 $24 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$

Multiples

WORKED EXAMPLE

5 → 5, 10, 15, 20, 25

22. Multiples

List the first five multiples of each number.

- 1 13 → _____
- 2 7 → _____
- 3 19 → _____
- 4 4 → _____
- 5 8 → _____
- 6 2 → _____
- 7 25 → _____
- 8 3 → _____
- 9 14 → _____
- 10 9 → _____
- 11 27 → _____
- 12 12 → _____
- 13 15 → _____
- 14 22 → _____

23. Circling multiples

Circle every multiple of the number in the box.

- | | | | | | | | |
|----|---|----|----|----|----|----|----|
| 15 | 2 | 5 | 29 | 36 | 15 | 32 | 23 |
| 16 | 5 | 13 | 10 | 15 | 37 | 12 | 39 |
| 17 | 6 | 22 | 5 | 30 | 27 | 24 | 18 |
| 18 | 2 | 15 | 13 | 30 | 9 | 6 | 8 |
| 19 | 3 | 24 | 4 | 31 | 21 | 40 | 6 |
| 20 | 5 | 2 | 10 | 35 | 5 | 16 | 19 |
| 21 | 7 | 28 | 7 | 11 | 16 | 34 | 35 |
| 22 | 4 | 7 | 22 | 16 | 26 | 6 | 4 |

24. Long division

Divide. Show your working.

23

$$4 \overline{) 236}$$

24

$$3 \overline{) 378}$$

25

$$5 \overline{) 670}$$

26

$$2 \overline{) 372}$$

27

$$8 \overline{) 120}$$

28

$$5 \overline{) 320}$$

29

$$5 \overline{) 690}$$

30

$$4 \overline{) 196}$$

Prime and Composite Numbers

WORKED EXAMPLE

19 **Prime** / Composite

25. Prime or composite

Circle whether each number is prime or composite.

1 16 Prime / Composite

2 10 Prime / Composite

3 46 Prime / Composite

4 22 Prime / Composite

5 4 Prime / Composite

6 12 Prime / Composite

7 23 Prime / Composite

8 32 Prime / Composite

9 24 Prime / Composite

10 36 Prime / Composite

11 42 Prime / Composite

12 26 Prime / Composite

13 30 Prime / Composite

14 13 Prime / Composite

15 8 Prime / Composite

16 28 Prime / Composite

17 34 Prime / Composite

18 40 Prime / Composite

19 6 Prime / Composite

20 14 Prime / Composite

21 3 Prime / Composite

22 18 Prime / Composite

23 20 Prime / Composite

24 7 Prime / Composite

26. Long division with remainders

Divide. Give the quotient and the remainder.

25

$$\begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 9 \overline{) 291} \end{array} \quad \begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 4 \overline{) 342} \end{array} \quad \begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 8 \overline{) 467} \end{array} \quad \begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 9 \overline{) 142} \end{array} \quad \begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 5 \overline{) 113} \end{array} \quad \begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 9 \overline{) 314} \end{array}$$

31

$$\begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 5 \overline{) 617} \end{array} \quad \begin{array}{r} \underline{\hspace{1cm}} \text{ R } \underline{\hspace{1cm}} \\ 6 \overline{) 273} \end{array}$$

Adding and Subtracting Fractions

WORKED EXAMPLE

$$\frac{1}{7} + \frac{5}{7} = \frac{6}{7}$$

27. Add and subtract fractions

Add or subtract. Write each answer in simplest form.

1 $\frac{6}{7} + \frac{2}{7} = \text{—}$

2 $\frac{4}{7} + \frac{4}{7} = \text{—}$

3 $\frac{1}{7} + \frac{4}{7} = \text{—}$

4 $\frac{1}{7} + \frac{6}{7} = \text{—}$

5 $\frac{2}{7} - \frac{1}{7} = \text{—}$

6 $\frac{6}{8} + \frac{7}{8} = \text{—}$

7 $\frac{3}{8} + \frac{4}{8} = \text{—}$

8 $\frac{3}{6} + \frac{3}{6} = \text{—}$

9 $\frac{4}{8} + \frac{6}{8} = \text{—}$

10 $\frac{1}{4} + \frac{2}{4} = \text{—}$

11 $\frac{6}{8} + \frac{3}{8} = \text{—}$

12 $\frac{7}{8} + \frac{3}{8} = \text{—}$

13 $\frac{3}{5} - \frac{2}{5} = \text{—}$

14 $\frac{6}{7} + \frac{3}{7} = \text{—}$

15 $\frac{6}{7} + \frac{4}{7} = \text{—}$

16 $\frac{3}{7} + \frac{1}{7} = \text{—}$

17 $\frac{3}{8} + \frac{7}{8} = \text{—}$

18 $\frac{3}{6} + \frac{4}{6} = \text{—}$

19 $\frac{3}{7} + \frac{4}{7} = \text{—}$

20 $\frac{3}{4} - \frac{1}{4} = \text{—}$

21 $\frac{4}{5} + \frac{3}{5} = \text{—}$

22 $\frac{1}{3} + \frac{1}{3} = \text{—}$

23 $\frac{3}{6} + \frac{5}{6} = \text{—}$

24 $\frac{5}{7} + \frac{3}{7} = \text{—}$

25 $\frac{2}{8} + \frac{5}{8} = \text{—}$

26 $\frac{3}{5} + \frac{3}{5} = \text{—}$

27 $\frac{6}{8} - \frac{5}{8} = \text{—}$

28 $\frac{5}{6} + \frac{5}{6} = \text{—}$

29 $\frac{1}{8} + \frac{3}{8} = \text{—}$

30 $\frac{7}{8} + \frac{7}{8} = \text{—}$

31 $\frac{4}{5} + \frac{4}{5} = \text{—}$

32 $\frac{4}{7} + \frac{2}{7} = \text{—}$

33 $\frac{6}{8} - \frac{3}{8} = \text{—}$

34 $\frac{2}{3} + \frac{1}{3} = \text{—}$

35 $\frac{7}{8} + \frac{4}{8} = \text{—}$

36 $\frac{3}{4} + \frac{1}{4} = \text{—}$

37 $\frac{6}{8} + \frac{1}{8} = \text{—}$

38 $\frac{4}{6} + \frac{5}{6} = \text{—}$

39 $\frac{5}{6} + \frac{3}{6} = \text{—}$

40 $\frac{4}{7} - \frac{2}{7} = \text{—}$

41 $\frac{4}{7} + \frac{1}{7} = \text{—}$

42 $\frac{4}{6} + \frac{3}{6} = \text{—}$

28. List the factors

List all the factors of each number.

43 3 → _____

44 29 → _____

45 8 → _____

28. List the factors (continued)

List all the factors of each number.

46 **31** → _____

47 **7** → _____

48 **4** → _____

49 **6** → _____

50 **37** → _____

51 **13** → _____

52 **23** → _____

Mixed Numbers

WORKED EXAMPLE

$$4\frac{2}{5} + 3\frac{2}{5} = 7\frac{4}{5}$$

29. Adding mixed numbers

Add. Write each answer as a mixed number in simplest form.

1 $5\frac{1}{7} + 4\frac{4}{7} = \underline{\hspace{1cm}}$

4 $2\frac{1}{5} + 4\frac{3}{5} = \underline{\hspace{1cm}}$

7 $3\frac{6}{7} + 5\frac{6}{7} = \underline{\hspace{1cm}}$

10 $1\frac{2}{7} + 1\frac{3}{7} = \underline{\hspace{1cm}}$

13 $2\frac{4}{7} + 3\frac{1}{7} = \underline{\hspace{1cm}}$

16 $2\frac{3}{8} + 3\frac{1}{8} = \underline{\hspace{1cm}}$

19 $5\frac{1}{7} + 2\frac{4}{7} = \underline{\hspace{1cm}}$

22 $4\frac{3}{5} + 4\frac{1}{5} = \underline{\hspace{1cm}}$

25 $2\frac{2}{5} + 5\frac{3}{5} = \underline{\hspace{1cm}}$

28 $2\frac{4}{5} + 4\frac{1}{5} = \underline{\hspace{1cm}}$

31 $5\frac{2}{5} + 4\frac{2}{5} = \underline{\hspace{1cm}}$

34 $1\frac{3}{5} + 4\frac{1}{5} = \underline{\hspace{1cm}}$

37 $5\frac{5}{8} + 3\frac{1}{8} = \underline{\hspace{1cm}}$

40 $2\frac{2}{5} + 5\frac{1}{5} = \underline{\hspace{1cm}}$

2 $5\frac{1}{8} + 3\frac{5}{8} = \underline{\hspace{1cm}}$

5 $2\frac{3}{7} + 4\frac{2}{7} = \underline{\hspace{1cm}}$

8 $4\frac{3}{7} + 3\frac{3}{7} = \underline{\hspace{1cm}}$

11 $5\frac{2}{5} + 3\frac{4}{5} = \underline{\hspace{1cm}}$

14 $1\frac{4}{5} + 2\frac{1}{5} = \underline{\hspace{1cm}}$

17 $2\frac{2}{7} + 5\frac{4}{7} = \underline{\hspace{1cm}}$

20 $2\frac{1}{8} + 2\frac{3}{8} = \underline{\hspace{1cm}}$

23 $3\frac{1}{7} + 4\frac{4}{7} = \underline{\hspace{1cm}}$

26 $5\frac{1}{5} + 4\frac{3}{5} = \underline{\hspace{1cm}}$

29 $1\frac{1}{8} + 5\frac{1}{8} = \underline{\hspace{1cm}}$

32 $1\frac{5}{8} + 2\frac{5}{8} = \underline{\hspace{1cm}}$

35 $3\frac{1}{8} + 3\frac{7}{8} = \underline{\hspace{1cm}}$

38 $4\frac{6}{7} + 3\frac{1}{7} = \underline{\hspace{1cm}}$

41 $5\frac{1}{6} + 1\frac{1}{6} = \underline{\hspace{1cm}}$

3 $4\frac{4}{7} + 4\frac{4}{7} = \underline{\hspace{1cm}}$

6 $2\frac{3}{7} + 2\frac{1}{7} = \underline{\hspace{1cm}}$

9 $4\frac{3}{7} + 5\frac{1}{7} = \underline{\hspace{1cm}}$

12 $1\frac{5}{8} + 1\frac{1}{8} = \underline{\hspace{1cm}}$

15 $2\frac{1}{7} + 3\frac{3}{7} = \underline{\hspace{1cm}}$

18 $1\frac{5}{8} + 5\frac{5}{8} = \underline{\hspace{1cm}}$

21 $5\frac{4}{5} + 1\frac{2}{5} = \underline{\hspace{1cm}}$

24 $1\frac{3}{8} + 5\frac{1}{8} = \underline{\hspace{1cm}}$

27 $2\frac{1}{5} + 2\frac{3}{5} = \underline{\hspace{1cm}}$

30 $4\frac{1}{6} + 3\frac{1}{6} = \underline{\hspace{1cm}}$

33 $2\frac{1}{7} + 3\frac{1}{7} = \underline{\hspace{1cm}}$

36 $4\frac{4}{7} + 1\frac{2}{7} = \underline{\hspace{1cm}}$

39 $2\frac{2}{7} + 5\frac{1}{7} = \underline{\hspace{1cm}}$

30. Multiples

List the first five multiples of each number.

42 $9 \rightarrow \underline{\hspace{10cm}}$

43 $11 \rightarrow \underline{\hspace{10cm}}$

44 $20 \rightarrow \underline{\hspace{10cm}}$

30. Multiples (continued)

List the first five multiples of each number.

45 **10** → _____

46 **8** → _____

47 **3** → _____

48 **24** → _____

49 **6** → _____

50 **4** → _____

51 **5** → _____

Tenths and Hundredths

WORKED EXAMPLE

29.23 → 0.2

31. What the digit is worth

Write the value of the highlighted digit.

- | | | | | | | | |
|----|-----------------------|----|------------------------|----|------------------------|----|------------------------|
| 1 | 4.4 <u>8</u> → _____ | 2 | 9.6 <u>6</u> → _____ | 3 | 67.3 <u>9</u> → _____ | 4 | 2. <u>7</u> 3 → _____ |
| 5 | 18.5 <u>4</u> → _____ | 6 | 27. <u>8</u> 0 → _____ | 7 | 70.3 <u>1</u> → _____ | 8 | 29.1 <u>3</u> → _____ |
| 9 | 24.4 <u>7</u> → _____ | 10 | 1.8 <u>8</u> → _____ | 11 | 40. <u>6</u> 1 → _____ | 12 | 0. <u>2</u> 2 → _____ |
| 13 | 6.2 <u>8</u> → _____ | 14 | 48.5 <u>2</u> → _____ | 15 | 5. <u>5</u> 3 → _____ | 16 | 9. <u>3</u> 1 → _____ |
| 17 | 21.7 <u>4</u> → _____ | 18 | 55.6 <u>3</u> → _____ | 19 | 21.8 <u>9</u> → _____ | 20 | 26. <u>6</u> 6 → _____ |
| 21 | 60.4 <u>2</u> → _____ | 22 | 23.2 <u>2</u> → _____ | 23 | 8. <u>5</u> 5 → _____ | 24 | 19.3 <u>5</u> → _____ |

32. Naming the place

Name the place of the highlighted digit.

- | | | | |
|----|------------------------------|----|------------------------------|
| 25 | 7. <u>7</u> 9 → _____ place | 26 | 26.3 <u>1</u> → _____ place |
| 27 | 54.7 <u>8</u> → _____ place | 28 | 30. <u>3</u> 3 → _____ place |
| 29 | 3. <u>5</u> 0 → _____ place | 30 | 25.5 <u>7</u> → _____ place |
| 31 | 47. <u>5</u> 7 → _____ place | 32 | 7.9 <u>6</u> → _____ place |
| 33 | 15.9 <u>3</u> → _____ place | 34 | 22.4 <u>3</u> → _____ place |
| 35 | 40.2 <u>5</u> → _____ place | 36 | 29.3 <u>7</u> → _____ place |
| 37 | 18. <u>9</u> 8 → _____ place | 38 | 44.4 <u>4</u> → _____ place |
| 39 | 29. <u>9</u> 0 → _____ place | 40 | 8.7 <u>2</u> → _____ place |
| 41 | 11. <u>8</u> 8 → _____ place | 42 | 47. <u>3</u> 9 → _____ place |
| 43 | 8.6 <u>2</u> → _____ place | 44 | 10.5 <u>2</u> → _____ place |
| 45 | 45. <u>7</u> 1 → _____ place | 46 | 20. <u>2</u> 0 → _____ place |
| 47 | 31. <u>6</u> 7 → _____ place | 48 | 16. <u>1</u> 5 → _____ place |

33. Prime or composite

Circle whether each number is prime or composite.

- | | | | | | |
|----|----|-------------------|----|----|-------------------|
| 49 | 30 | Prime / Composite | 50 | 8 | Prime / Composite |
| 51 | 3 | Prime / Composite | 52 | 4 | Prime / Composite |
| 53 | 36 | Prime / Composite | 54 | 32 | Prime / Composite |

33. Prime or composite (continued)

Circle whether each number is prime or composite.

- 55

48

Prime / Composite
- 56

18

Prime / Composite
- 57

24

Prime / Composite
- 58

26

Prime / Composite

Comparing Decimals

WORKED EXAMPLE

$$2.9 \boxed{<} 7.48$$

34. Compare decimals

Write $>$, $=$, or $<$ between each pair of decimals.

- | | | | |
|-----------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| 1 $5.4 \boxed{} 2.5$ | 2 $2.0 \boxed{} 2.71$ | 3 $6.5 \boxed{} 3.7$ | 4 $5.9 \boxed{} 2.37$ |
| 5 $2.8 \boxed{} 6.0$ | 6 $3.4 \boxed{} 3.40$ | 7 $0.81 \boxed{} 7.6$ | 8 $1.7 \boxed{} 5.4$ |
| 9 $4.0 \boxed{} 0.89$ | 10 $4.4 \boxed{} 0.6$ | 11 $6.2 \boxed{} 2.65$ | 12 $3.0 \boxed{} 3.00$ |
| 13 $0.3 \boxed{} 1.96$ | 14 $1.05 \boxed{} 7.5$ | 15 $0.28 \boxed{} 6.93$ | 16 $3.0 \boxed{} 0.55$ |
| 17 $0.50 \boxed{} 7.3$ | 18 $1.26 \boxed{} 9.88$ | 19 $3.3 \boxed{} 0.19$ | 20 $1.8 \boxed{} 6.4$ |
| 21 $8.3 \boxed{} 7.4$ | 22 $4.1 \boxed{} 0.39$ | 23 $3.9 \boxed{} 9.9$ | 24 $0.20 \boxed{} 5.7$ |
| 25 $6.7 \boxed{} 9.7$ | 26 $5.0 \boxed{} 5.0$ | 27 $3.1 \boxed{} 1.80$ | 28 $9.2 \boxed{} 0.36$ |
| 29 $4.7 \boxed{} 9.5$ | 30 $1.4 \boxed{} 2.2$ | | |

35. Rounding numbers

Round each number to the nearest 10.

- | | | | |
|---|---|---|---|
| 31 $73 \approx \underline{\hspace{1cm}}$ | 32 $493 \approx \underline{\hspace{1cm}}$ | 33 $749 \approx \underline{\hspace{1cm}}$ | 34 $282 \approx \underline{\hspace{1cm}}$ |
| 35 $526 \approx \underline{\hspace{1cm}}$ | 36 $259 \approx \underline{\hspace{1cm}}$ | 37 $585 \approx \underline{\hspace{1cm}}$ | 38 $284 \approx \underline{\hspace{1cm}}$ |
| 39 $17 \approx \underline{\hspace{1cm}}$ | 40 $253 \approx \underline{\hspace{1cm}}$ | 41 $456 \approx \underline{\hspace{1cm}}$ | 42 $286 \approx \underline{\hspace{1cm}}$ |
| 43 $169 \approx \underline{\hspace{1cm}}$ | 44 $445 \approx \underline{\hspace{1cm}}$ | 45 $981 \approx \underline{\hspace{1cm}}$ | 46 $305 \approx \underline{\hspace{1cm}}$ |
| 47 $115 \approx \underline{\hspace{1cm}}$ | 48 $931 \approx \underline{\hspace{1cm}}$ | 49 $473 \approx \underline{\hspace{1cm}}$ | 50 $48 \approx \underline{\hspace{1cm}}$ |

Types of Angle

WORKED EXAMPLE



acute

right

obtuse

36. Acute, right, or obtuse

Write whether each angle is acute, right, or obtuse.

1



acute

right

obtuse

2



acute

right

obtuse

3



acute

right

obtuse

4



acute

right

obtuse

5



acute

right

obtuse

6



acute

right

obtuse

7



acute

right

obtuse

8



acute

right

obtuse

9



acute

right

obtuse

37. Add and subtract fractions

Add or subtract. Write each answer in simplest form.

$$10 \quad \frac{1}{6} + \frac{2}{6} = \text{—}$$

$$11 \quad \frac{4}{6} + \frac{3}{6} = \text{—}$$

$$12 \quad \frac{4}{5} + \frac{3}{5} = \text{—}$$

$$13 \quad \frac{4}{7} + \frac{1}{7} = \text{—}$$

$$14 \quad \frac{4}{6} - \frac{1}{6} = \text{—}$$

$$15 \quad \frac{4}{7} + \frac{5}{7} = \text{—}$$

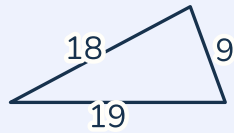
$$16 \quad \frac{1}{2} + \frac{1}{2} = \text{—}$$

$$17 \quad \frac{2}{5} + \frac{3}{5} = \text{—}$$

$$18 \quad \frac{3}{4} + \frac{3}{4} = \text{—}$$

Types of Triangle

WORKED EXAMPLE



equilateral

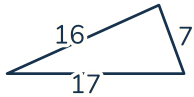
isosceles

scalene

38. Classify triangles by angles or sides

Name each triangle.

1

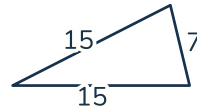


equilateral

isosceles

scalene

2

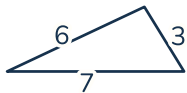


equilateral

isosceles

scalene

3

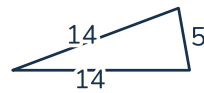


equilateral

isosceles

scalene

4

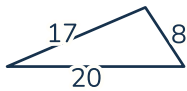


equilateral

isosceles

scalene

5

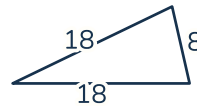


equilateral

isosceles

scalene

6

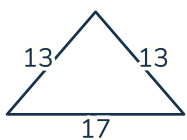


equilateral

isosceles

scalene

7



equilateral

isosceles

scalene

8



equilateral

isosceles

scalene

39. Adding mixed numbers

Add. Write each answer as a mixed number in simplest form.

$$9 \quad 4\frac{4}{7} + 1\frac{1}{7} = \underline{\hspace{1cm}} \text{ —}$$

$$10 \quad 5\frac{2}{5} + 3\frac{1}{5} = \underline{\hspace{1cm}} \text{ —}$$

$$11 \quad 2\frac{2}{5} + 5\frac{3}{5} = \underline{\hspace{1cm}} \text{ —}$$

$$12 \quad 4\frac{1}{7} + 3\frac{1}{7} = \underline{\hspace{1cm}} \text{ —}$$

$$13 \quad 4\frac{2}{5} + 2\frac{1}{5} = \underline{\hspace{1cm}} \text{ —}$$

$$14 \quad 2\frac{2}{5} + 2\frac{2}{5} = \underline{\hspace{1cm}} \text{ —}$$

$$15 \quad 1\frac{2}{3} + 5\frac{1}{3} = \underline{\hspace{1cm}} \text{ —}$$

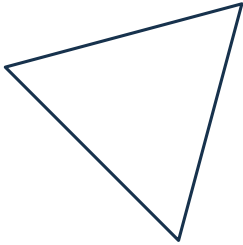
$$16 \quad 5\frac{1}{7} + 2\frac{4}{7} = \underline{\hspace{1cm}} \text{ —}$$

Lines of Symmetry

40. Lines of symmetry

Write how many lines of symmetry each shape has.

1



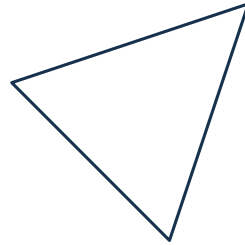
_____ lines

2



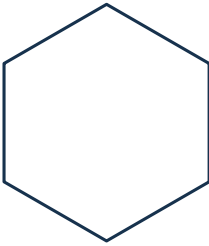
_____ lines

3



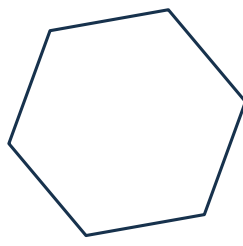
_____ lines

4



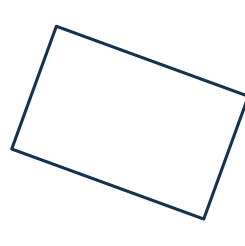
_____ lines

5



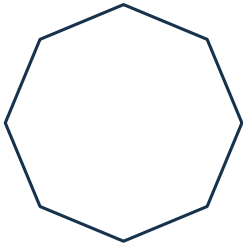
_____ lines

6



_____ lines

7



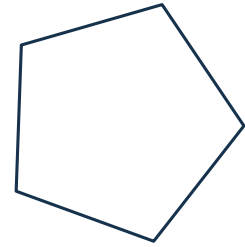
_____ lines

8



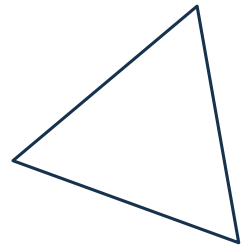
_____ lines

9



_____ lines

10



_____ lines

41. What the digit is worth

Write the value of the highlighted digit.

- | | | | | | | | |
|----|-------------------------------|----|-------------------------------|----|-------------------------------|----|-------------------------------|
| 11 | 9. <u>5</u> 1 → _____ | 12 | 23. <u>4</u> 0 → _____ | 13 | 37. <u>3</u> <u>2</u> → _____ | 14 | 18. <u>2</u> <u>1</u> → _____ |
| 15 | 6. <u>4</u> <u>5</u> → _____ | 16 | 27. <u>3</u> <u>3</u> → _____ | 17 | 48. <u>1</u> 8 → _____ | 18 | 23. <u>6</u> 3 → _____ |
| 19 | 29. <u>2</u> <u>3</u> → _____ | 20 | 13. <u>8</u> 1 → _____ | | | | |

Number Patterns

WORKED EXAMPLE

2, 11, 20, 29, 38

42. Number patterns

Find the missing number in each pattern.

- | | | |
|----------------------|----------------------|----------------------|
| 1 5, __, 15, 20, 25 | 2 6, 14, 22, __, 38 | 3 5, 12, __, 26, 33 |
| 4 5, 13, 21, __, 37 | 5 7, 14, __, 28, 35 | 6 2, 7, __, 17, 22 |
| 7 5, 8, 11, __, 17 | 8 6, 13, __, 27, 34 | 9 8, 16, 24, __, 40 |
| 10 8, 16, __, 32, 40 | 11 3, __, 9, 12, 15 | 12 4, 16, 28, __, 52 |
| 13 6, __, 12, 15, 18 | 14 6, 11, 16, __, 26 | 15 1, 9, __, 25, 33 |
| 16 6, 9, 12, __, 18 | 17 1, __, 13, 19, 25 | 18 4, __, 18, 25, 32 |
| 19 5, __, 19, 26, 33 | 20 4, 6, __, 10, 12 | 21 5, 13, __, 29, 37 |
| 22 8, 17, __, 35, 44 | 23 8, 15, 22, __, 36 | 24 9, 11, __, 15, 17 |

43. Compare decimals

Write >, =, or < between each pair of decimals.

- | | | | |
|---------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| 25 1.4 <input type="text"/> 2.2 | 26 3.4 <input type="text"/> 3.28 | 27 1.05 <input type="text"/> 1.29 | 28 1.9 <input type="text"/> 0.04 |
| 29 1.2 <input type="text"/> 3.3 | 30 4.0 <input type="text"/> 2.84 | 31 6.2 <input type="text"/> 1.8 | 32 1.4 <input type="text"/> 1.8 |
| 33 0.9 <input type="text"/> 0.9 | 34 4.4 <input type="text"/> 5.79 | | |

Line Plots and Bar Graphs

44. Line plots

Read each line plot and answer the question.

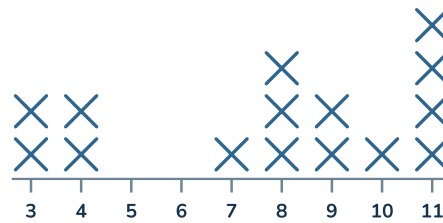
Length of our pencils (inches)



- 1 How many more pencils measured 7 inches than 4 inches?

—

Height of the bean plants (inches)



- 2 How many plants were measured altogether?

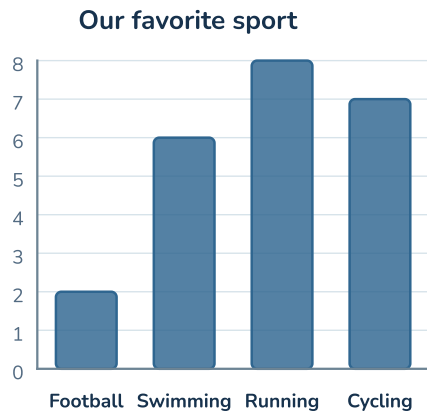
—

- 3 How many plants were longer than 4 inches?

—

45. Bar graphs

Read each bar graph and answer the question.



- 4 How many more chose running than chose football?

- 5 How many fewer chose swimming than chose running?

- 6 How many altogether?

Spot the Mistake

WORKED EXAMPLE

Theo wrote $11 - 9 = 12$. Write the correct answer.

ANSWER: **2**

Why? ANSWER: a ten was not borrowed.

46. Spot the error

Read each question and write what you work out.

- 1 Noor wrote $39 + 52 = 81$. Write the correct answer.

Why?

- 2 Imani wrote $27 - 11 = 17$. Write the correct answer.

Why?

- 3 Theo wrote $53 - 20 = 23$. Write the correct answer.

Why?

- 4 Ben wrote $33 + 42 = 76$. Write the correct answer.

Why?

- 5 Priya wrote $27 + 26 = 52$. Write the correct answer.

Why?

- 6 Theo wrote $13 + 26 = 38$. Write the correct answer.

Why?

46. Spot the error (continued)

Read each question and write what you work out.

7 Ben wrote $47 - 13 = 24$. Write the correct answer.

Why?

8 Priya wrote $52 + 24 = 77$. Write the correct answer.

Why?

Review: Multiplying

WORKED EXAMPLE

$$\begin{array}{r}
 779 \\
 \times 19 \\
 \hline
 7011 \\
 7790 \\
 \hline
 14801
 \end{array}$$

47. Multiply multi-digit numbers

Multiply. Show your working.

$$\begin{array}{r}
 1 \quad 273 \\
 \times 37 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2 \quad 721 \\
 \times 11 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3 \quad 993 \\
 \times 29 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4 \quad 542 \\
 \times 29 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 5 \quad 189 \\
 \times 34 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 6 \quad 115 \\
 \times 21 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 7 \quad 933 \\
 \times 28 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 8 \quad 235 \\
 \times 37 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 9 \quad 177 \\
 \times 54 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 10 \quad 932 \\
 \times 13 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 11 \quad 452 \\
 \times 54 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 12 \quad 180 \\
 \times 14 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 13 \quad 360 \\
 \times 29 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 14 \quad 392 \\
 \times 55 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 15 \quad 279 \\
 \times 37 \\
 \hline
 \end{array}$$

48. Number patterns

Find the missing number in each pattern.

$$16 \quad 8, _, 32, 44, 56$$

$$17 \quad 3, 8, 13, _, 23$$

$$18 \quad 2, _, 26, 38, 50$$

$$19 \quad 3, 14, _, 36, 47$$

$$20 \quad 7, 11, 15, _, 23$$

$$21 \quad 1, _, 13, 19, 25$$

48. Number patterns (continued)

Find the missing number in each pattern.

22 3, 15, 27, ____, 51

23 1, 11, ____, 31, 41

24 7, 18, 29, ____, 51

25 6, 17, ____, 39, 50

Review: Division and Factors

WORKED EXAMPLE

$$33 \div 5 = \underline{6} \text{ R } \underline{3}$$

49. Division with remainders

Divide. Write the quotient and the remainder.

- | | | |
|---|---|---|
| 1 $7 \div 2 = \underline{\quad} \text{ R } \underline{\quad}$ | 2 $27 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 3 $57 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 4 $28 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$ | 5 $11 \div 2 = \underline{\quad} \text{ R } \underline{\quad}$ | 6 $25 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 7 $47 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 8 $22 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$ | 9 $25 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 10 $14 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | 11 $43 \div 6 = \underline{\quad} \text{ R } \underline{\quad}$ | 12 $26 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$ |
| 13 $34 \div 8 = \underline{\quad} \text{ R } \underline{\quad}$ | 14 $46 \div 5 = \underline{\quad} \text{ R } \underline{\quad}$ | |

50. List the factors

List all the factors of each number.

- | | | | |
|----|----|---|-------|
| 15 | 4 | → | _____ |
| 16 | 23 | → | _____ |
| 17 | 39 | → | _____ |
| 18 | 17 | → | _____ |
| 19 | 11 | → | _____ |
| 20 | 5 | → | _____ |
| 21 | 14 | → | _____ |
| 22 | 25 | → | _____ |
| 23 | 31 | → | _____ |
| 24 | 9 | → | _____ |
| 25 | 27 | → | _____ |
| 26 | 37 | → | _____ |
| 27 | 2 | → | _____ |
| 28 | 8 | → | _____ |

Answer Key (1 of 10)

Place Value in Four-Digit Numbers

The value of a digit

1. 7723 (3) $\rightarrow$ 3
2. 4627 (7) $\rightarrow$ 7
3. 7264 (2) $\rightarrow$ 200
4. 2835 (3) $\rightarrow$ 30
5. 7131 (1) $\rightarrow$ 1
6. 3983 (8) $\rightarrow$ 80
7. 7476 (7) $\rightarrow$ 7000
8. 5893 (9) $\rightarrow$ 90
9. 3945 (4) $\rightarrow$ 40
10. 9797 (9) $\rightarrow$ 90
11. 2258 (2) $\rightarrow$ 200
12. 5341 (4) $\rightarrow$ 40
13. 5744 (4) $\rightarrow$ 4
14. 4585 (5) $\rightarrow$ 500
15. 4579 (9) $\rightarrow$ 9
16. 7943 (3) $\rightarrow$ 3
17. 8386 (8) $\rightarrow$ 80
18. 3522 (5) $\rightarrow$ 500
19. 5156 (5) $\rightarrow$ 50
20. 8995 (9) $\rightarrow$ 90
21. 3725 (3) $\rightarrow$ 3000
22. 4568 (6) $\rightarrow$ 60
23. 5857 (7) $\rightarrow$ 7
24. 7791 (9) $\rightarrow$ 90

Writing expanded form

25. $1691 = 1000 + 600 + 90 + 1$
26. $5767 = 5000 + 700 + 60 + 7$
27. $6267 = 6000 + 200 + 60 + 7$
28. $1581 = 1000 + 500 + 80 + 1$
29. $8807 = 8000 + 800 + 7$
30. $8888 = 8000 + 800 + 80 + 8$
31. $7968 = 7000 + 900 + 60 + 8$
32. $8573 = 8000 + 500 + 70 + 3$
33. $6372 = 6000 + 300 + 70 + 2$
34. $7229 = 7000 + 200 + 20 + 9$
35. $6759 = 6000 + 700 + 50 + 9$
36. $6296 = 6000 + 200 + 90 + 6$
37. $3509 = 3000 + 500 + 9$
38. $3120 = 3000 + 100 + 20$
39. $7678 = 7000 + 600 + 70 + 8$
40. $6360 = 6000 + 300 + 60$
41. $2289 = 2000 + 200 + 80 + 9$
42. $7485 = 7000 + 400 + 80 + 5$

Place Value in Four-Digit Numbers (continued)

Writing expanded form (continued)

43. $1629 = 1000 + 600 + 20 + 9$
44. $8104 = 8000 + 100 + 4$
45. $7231 = 7000 + 200 + 30 + 1$
46. $5269 = 5000 + 200 + 60 + 9$
47. $6346 = 6000 + 300 + 40 + 6$

Rounding to the Nearest Ten

Rounding numbers

1. $713 \approx 710$
2. $172 \approx 170$
3. $72 \approx 70$
4. $17 \approx 20$
5. $947 \approx 950$
6. $751 \approx 750$
7. $74 \approx 70$
8. $21 \approx 20$
9. $305 \approx 310$
10. $539 \approx 540$
11. $531 \approx 530$
12. $327 \approx 330$
13. $303 \approx 300$
14. $311 \approx 310$
15. $82 \approx 80$
16. $589 \approx 590$
17. $639 \approx 640$
18. $499 \approx 500$
19. $716 \approx 720$
20. $675 \approx 680$
21. $491 \approx 490$
22. $542 \approx 540$
23. $147 \approx 150$
24. $963 \approx 960$
25. $126 \approx 130$
26. $957 \approx 960$
27. $304 \approx 300$

Estimating a sum

28. $126 + 191 \approx 130 + 190 = 320$
29. $161 + 235 \approx 160 + 240 = 400$
30. $126 + 422 \approx 130 + 420 = 550$
31. $133 + 532 \approx 130 + 530 = 660$
32. $112 + 862 \approx 110 + 860 = 970$
33. $133 + 323 \approx 130 + 320 = 450$
34. $105 + 147 \approx 110 + 150 = 260$

Answer Key (2 of 10)

Rounding to the Nearest Ten (continued)

Estimating a sum (continued)

35. $161 + 224 \approx 160 + 220 = 380$

Estimating a difference

36. $196 - 191 \approx 200 - 190 = 10$

37. $245 - 213 \approx 250 - 210 = 40$

38. $301 - 125 \approx 300 - 130 = 170$

39. $182 - 136 \approx 180 - 140 = 40$

40. $413 - 213 \approx 410 - 210 = 200$

41. $133 - 114 \approx 130 - 110 = 20$

42. $406 - 301 \approx 410 - 300 = 110$

43. $231 - 169 \approx 230 - 170 = 60$

Estimating a product

44. $41 \times 25 \approx 40 \times 30 = 1200$

45. $62 \times 11 \approx 60 \times 10 = 600$

46. $83 \times 46 \approx 80 \times 50 = 4000$

47. $44 \times 53 \approx 40 \times 50 = 2000$

48. $62 \times 74 \approx 60 \times 70 = 4200$

49. $14 \times 11 \approx 10 \times 10 = 100$

50. $47 \times 81 \approx 50 \times 80 = 4000$

51. $47 \times 53 \approx 50 \times 50 = 2500$

Column Addition and Subtraction

Add and subtract multi-digit numbers

1. $284 + 201 = 485$

2. $678 - 339 = 339$

3. $932 - 851 = 81$

4. $474 - 357 = 117$

5. $282 + 179 = 461$

6. $160 + 437 = 597$

7. $973 - 276 = 697$

8. $364 - 254 = 110$

9. $250 - 107 = 143$

10. $273 + 421 = 694$

11. $765 - 677 = 88$

12. $597 - 432 = 165$

13. $327 + 253 = 580$

14. $870 - 463 = 407$

15. $612 - 482 = 130$

16. $588 - 211 = 377$

17. $441 - 341 = 100$

18. $910 - 557 = 353$

19. $141 + 377 = 518$

20. $538 - 213 = 325$

Multiplying Two Digits by One

Multiply multi-digit numbers

1. $34 \times 3 = 102$

2. $71 \times 2 = 142$

3. $77 \times 3 = 231$

4. $13 \times 2 = 26$

5. $11 \times 6 = 66$

6. $85 \times 2 = 170$

7. $80 \times 4 = 320$

8. $15 \times 4 = 60$

9. $56 \times 3 = 168$

10. $49 \times 2 = 98$

11. $91 \times 3 = 273$

12. $11 \times 3 = 33$

13. $74 \times 2 = 148$

14. $53 \times 5 = 265$

15. $57 \times 2 = 114$

16. $75 \times 2 = 150$

17. $43 \times 4 = 172$

18. $67 \times 4 = 268$

19. $31 \times 4 = 124$

20. $13 \times 5 = 65$

21. $36 \times 9 = 324$

22. $37 \times 2 = 74$

23. $10 \times 3 = 30$

24. $21 \times 4 = 84$

The value of a digit

25. 4970 (7) $\rightarrow 70$

26. 4856 (5) $\rightarrow 50$

27. 8345 (8) $\rightarrow 8000$

28. 1624 (2) $\rightarrow 20$

29. 4476 (6) $\rightarrow 6$

30. 3479 (9) $\rightarrow 9$

31. 8515 (8) $\rightarrow 8000$

32. 1959 (9) $\rightarrow 9$

33. 8234 (4) $\rightarrow 4$

34. 9194 (9) $\rightarrow 90$

Multiplying Three Digits by One

Multiply multi-digit numbers

1. $719 \times 2 = 1438$

2. $760 \times 2 = 1520$

3. $395 \times 5 = 1975$

4. $104 \times 4 = 416$

5. $157 \times 5 = 785$

Answer Key (3 of 10)

Multiplying Three Digits by One (continued)

Multiply multi-digit numbers (continued)

6. $497 \times 3 = 1491$
7. $219 \times 9 = 1971$
8. $537 \times 3 = 1611$
9. $573 \times 2 = 1146$
10. $391 \times 2 = 782$
11. $903 \times 2 = 1806$
12. $328 \times 2 = 656$
13. $113 \times 2 = 226$
14. $433 \times 5 = 2165$
15. $274 \times 3 = 822$
16. $287 \times 4 = 1148$
17. $744 \times 2 = 1488$
18. $807 \times 4 = 3228$
19. $230 \times 2 = 460$
20. $587 \times 2 = 1174$
21. $225 \times 8 = 1800$
22. $193 \times 7 = 1351$
23. $334 \times 4 = 1336$
24. $161 \times 5 = 805$

Estimating a sum

25. $126 + 114 \approx 130 + 110 = 240$
26. $112 + 279 \approx 110 + 280 = 390$
27. $112 + 598 \approx 110 + 600 = 710$
28. $161 + 301 \approx 160 + 300 = 460$
29. $154 + 114 \approx 150 + 110 = 260$
30. $105 + 323 \approx 110 + 320 = 430$
31. $119 + 334 \approx 120 + 330 = 450$
32. $133 + 136 \approx 130 + 140 = 270$
33. $161 + 169 \approx 160 + 170 = 330$
34. $112 + 158 \approx 110 + 160 = 270$

Multiplying Two Digits by Two

Multiply multi-digit numbers

1. $11 \times 99 = 1089$
2. $56 \times 18 = 1008$
3. $30 \times 61 = 1830$
4. $34 \times 43 = 1462$
5. $29 \times 11 = 319$
6. $18 \times 14 = 252$
7. $42 \times 61 = 2562$
8. $40 \times 38 = 1520$
9. $63 \times 21 = 1323$
10. $33 \times 40 = 1320$

Multiplying Two Digits by Two (continued)

Multiply multi-digit numbers (continued)

11. $67 \times 36 = 2412$
12. $10 \times 19 = 190$
13. $12 \times 95 = 1140$
14. $35 \times 86 = 3010$
15. $18 \times 63 = 1134$

Rounding numbers

16. $337 \approx 340$
17. $141 \approx 140$
18. $352 \approx 350$
19. $914 \approx 910$
20. $526 \approx 530$
21. $694 \approx 690$
22. $529 \approx 530$
23. $325 \approx 330$
24. $309 \approx 310$
25. $305 \approx 310$

Division with Remainders

Division with remainders

1. $31 \div 8 = 3 \text{ R } 7$
2. $32 \div 3 = 10 \text{ R } 2$
3. $44 \div 8 = 5 \text{ R } 4$
4. $29 \div 9 = 3 \text{ R } 2$
5. $26 \div 3 = 8 \text{ R } 2$
6. $27 \div 4 = 6 \text{ R } 3$
7. $55 \div 9 = 6 \text{ R } 1$
8. $23 \div 7 = 3 \text{ R } 2$
9. $18 \div 7 = 2 \text{ R } 4$
10. $29 \div 5 = 5 \text{ R } 4$
11. $59 \div 7 = 8 \text{ R } 3$
12. $17 \div 6 = 2 \text{ R } 5$
13. $31 \div 5 = 6 \text{ R } 1$
14. $43 \div 5 = 8 \text{ R } 3$
15. $26 \div 7 = 3 \text{ R } 5$
16. $13 \div 5 = 2 \text{ R } 3$
17. $33 \div 6 = 5 \text{ R } 3$
18. $60 \div 8 = 7 \text{ R } 4$
19. $17 \div 7 = 2 \text{ R } 3$
20. $10 \div 4 = 2 \text{ R } 2$
21. $39 \div 8 = 4 \text{ R } 7$
22. $14 \div 3 = 4 \text{ R } 2$
23. $31 \div 4 = 7 \text{ R } 3$
24. $31 \div 3 = 10 \text{ R } 1$

Answer Key (4 of 10)

Division with Remainders (continued)

Word problems: dividing

25. $6 \div 2 = 3$ notebooks
26. $32 \div 8 = 4$ rows
27. $54 \div 6 = 9$ rows
28. $15 \div 5 = 3$ trays

Long Division

Long division

1. $330 \div 6 = 55$
2. $279 \div 9 = 31$
3. $411 \div 3 = 137$
4. $260 \div 4 = 65$
5. $245 \div 5 = 49$
6. $224 \div 2 = 112$
7. $525 \div 7 = 75$
8. $270 \div 2 = 135$
9. $231 \div 3 = 77$
10. $200 \div 4 = 50$
11. $560 \div 5 = 112$
12. $262 \div 2 = 131$

Add and subtract multi-digit numbers

13. $372 + 117 = 489$
14. $731 - 321 = 410$
15. $958 - 374 = 584$
16. $476 - 277 = 199$
17. $136 + 124 = 260$
18. $360 - 330 = 30$
19. $914 - 311 = 603$
20. $160 + 453 = 613$

Long Division with Remainders

Long division with remainders

1. $126 \div 5 = 25 \text{ R } 1$
2. $115 \div 9 = 12 \text{ R } 7$
3. $478 \div 5 = 95 \text{ R } 3$
4. $129 \div 6 = 21 \text{ R } 3$
5. $333 \div 5 = 66 \text{ R } 3$
6. $277 \div 9 = 30 \text{ R } 7$
7. $469 \div 9 = 52 \text{ R } 1$
8. $268 \div 7 = 38 \text{ R } 2$
9. $165 \div 8 = 20 \text{ R } 5$
10. $191 \div 4 = 47 \text{ R } 3$
11. $494 \div 4 = 123 \text{ R } 2$
12. $187 \div 6 = 31 \text{ R } 1$

Long Division with Remainders (continued)

Multiply multi-digit numbers

13. $24 \times 23 = 552$
14. $16 \times 37 = 592$
15. $50 \times 65 = 3250$
16. $18 \times 73 = 1314$
17. $18 \times 20 = 360$
18. $77 \times 13 = 1001$
19. $53 \times 39 = 2067$
20. $14 \times 66 = 924$

Factors

List the factors

1. $19 \rightarrow 1, 19$
 2. $2 \rightarrow 1, 2$
 3. $39 \rightarrow 1, 3, 13, 39$
 4. $23 \rightarrow 1, 23$
 5. $25 \rightarrow 1, 5, 25$
 6. $5 \rightarrow 1, 5$
 7. $33 \rightarrow 1, 3, 11, 33$
 8. $9 \rightarrow 1, 3, 9$
 9. $37 \rightarrow 1, 37$
 10. $3 \rightarrow 1, 3$
 11. $26 \rightarrow 1, 2, 13, 26$
 12. $7 \rightarrow 1, 7$
 13. $31 \rightarrow 1, 31$
 14. $8 \rightarrow 1, 2, 4, 8$
 15. $13 \rightarrow 1, 13$
 16. $17 \rightarrow 1, 17$
 17. $4 \rightarrow 1, 2, 4$
 18. $34 \rightarrow 1, 2, 17, 34$
 19. $29 \rightarrow 1, 29$
 20. $11 \rightarrow 1, 11$
 21. $22 \rightarrow 1, 2, 11, 22$
 22. $12 \rightarrow 1, 2, 3, 4, 6, 12$
 23. $15 \rightarrow 1, 3, 5, 15$
 24. $27 \rightarrow 1, 3, 9, 27$
- Division with remainders
25. $15 \div 2 = 7 \text{ R } 1$
 26. $20 \div 6 = 3 \text{ R } 2$
 27. $47 \div 6 = 7 \text{ R } 5$
 28. $13 \div 4 = 3 \text{ R } 1$
 29. $19 \div 7 = 2 \text{ R } 5$
 30. $17 \div 6 = 2 \text{ R } 5$
 31. $37 \div 7 = 5 \text{ R } 2$

Answer Key (5 of 10)

Factors (continued)

Division with remainders (continued)

32. $24 \div 5 = 4 \text{ R } 4$

Multiples

Multiples

1. $13 \rightarrow 13, 26, 39, 52, 65$
2. $7 \rightarrow 7, 14, 21, 28, 35$
3. $19 \rightarrow 19, 38, 57, 76, 95$
4. $4 \rightarrow 4, 8, 12, 16, 20$
5. $8 \rightarrow 8, 16, 24, 32, 40$
6. $2 \rightarrow 2, 4, 6, 8, 10$
7. $25 \rightarrow 25, 50, 75, 100, 125$
8. $3 \rightarrow 3, 6, 9, 12, 15$
9. $14 \rightarrow 14, 28, 42, 56, 70$
10. $9 \rightarrow 9, 18, 27, 36, 45$
11. $27 \rightarrow 27, 54, 81, 108, 135$
12. $12 \rightarrow 12, 24, 36, 48, 60$
13. $15 \rightarrow 15, 30, 45, 60, 75$
14. $22 \rightarrow 22, 44, 66, 88, 110$

Circling multiples

15. $2 \rightarrow 32, 36$
16. $5 \rightarrow 10, 15$
17. $6 \rightarrow 18, 24, 30$
18. $2 \rightarrow 6, 8, 30$
19. $3 \rightarrow 6, 21, 24$
20. $5 \rightarrow 5, 10, 35$
21. $7 \rightarrow 7, 28, 35$
22. $4 \rightarrow 4, 16$

Long division

23. $236 \div 4 = 59$
24. $378 \div 3 = 126$
25. $670 \div 5 = 134$
26. $372 \div 2 = 186$
27. $120 \div 8 = 15$
28. $320 \div 5 = 64$
29. $690 \div 5 = 138$
30. $196 \div 4 = 49$

Prime and Composite Numbers

Prime or composite

1. $16 \rightarrow \text{Composite } (2 \times 8)$
2. $10 \rightarrow \text{Composite } (2 \times 5)$
3. $46 \rightarrow \text{Composite } (2 \times 23)$
4. $22 \rightarrow \text{Composite } (2 \times 11)$

Prime and Composite Numbers (continued)

Prime or composite (continued)

5. $4 \rightarrow \text{Composite } (2 \times 2)$
6. $12 \rightarrow \text{Composite } (2 \times 6)$
7. $23 \rightarrow \text{Prime}$
8. $32 \rightarrow \text{Composite } (2 \times 16)$
9. $24 \rightarrow \text{Composite } (2 \times 12)$
10. $36 \rightarrow \text{Composite } (2 \times 18)$
11. $42 \rightarrow \text{Composite } (2 \times 21)$
12. $26 \rightarrow \text{Composite } (2 \times 13)$
13. $30 \rightarrow \text{Composite } (2 \times 15)$
14. $13 \rightarrow \text{Prime}$
15. $8 \rightarrow \text{Composite } (2 \times 4)$
16. $28 \rightarrow \text{Composite } (2 \times 14)$
17. $34 \rightarrow \text{Composite } (2 \times 17)$
18. $40 \rightarrow \text{Composite } (2 \times 20)$
19. $6 \rightarrow \text{Composite } (2 \times 3)$
20. $14 \rightarrow \text{Composite } (2 \times 7)$
21. $3 \rightarrow \text{Prime}$
22. $18 \rightarrow \text{Composite } (2 \times 9)$
23. $20 \rightarrow \text{Composite } (2 \times 10)$
24. $7 \rightarrow \text{Prime}$

Long division with remainders

25. $291 \div 9 = 32 \text{ R } 3$
26. $342 \div 4 = 85 \text{ R } 2$
27. $467 \div 8 = 58 \text{ R } 3$
28. $142 \div 9 = 15 \text{ R } 7$
29. $113 \div 5 = 22 \text{ R } 3$
30. $314 \div 9 = 34 \text{ R } 8$
31. $617 \div 5 = 123 \text{ R } 2$
32. $273 \div 6 = 45 \text{ R } 3$

Adding and Subtracting Fractions

Add and subtract fractions

1. $\frac{6}{7} + \frac{2}{7} = \frac{8}{7}$
2. $\frac{4}{7} + \frac{4}{7} = \frac{8}{7}$
3. $\frac{1}{7} + \frac{4}{7} = \frac{5}{7}$
4. $\frac{1}{7} + \frac{6}{7} = 1$
5. $\frac{2}{7} - \frac{1}{7} = \frac{1}{7}$
6. $\frac{6}{8} + \frac{7}{8} = \frac{13}{8}$
7. $\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$
8. $\frac{3}{6} + \frac{3}{6} = 1$
9. $\frac{4}{8} + \frac{6}{8} = \frac{5}{4}$
10. $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$
11. $\frac{6}{8} + \frac{3}{8} = \frac{9}{8}$

Answer Key (6 of 10)

Adding and Subtracting Fractions (continued)

Add and subtract fractions (continued)

12. $7/8 + 3/8 = 5/4$
13. $3/5 - 2/5 = 1/5$
14. $6/7 + 3/7 = 9/7$
15. $6/7 + 4/7 = 10/7$
16. $3/7 + 1/7 = 4/7$
17. $3/8 + 7/8 = 5/4$
18. $3/6 + 4/6 = 7/6$
19. $3/7 + 4/7 = 1$
20. $3/4 - 1/4 = 1/2$
21. $4/5 + 3/5 = 7/5$
22. $1/3 + 1/3 = 2/3$
23. $3/6 + 5/6 = 4/3$
24. $5/7 + 3/7 = 8/7$
25. $2/8 + 5/8 = 7/8$
26. $3/5 + 3/5 = 6/5$
27. $6/8 - 5/8 = 1/8$
28. $5/6 + 5/6 = 5/3$
29. $1/8 + 3/8 = 1/2$
30. $7/8 + 7/8 = 7/4$
31. $4/5 + 4/5 = 8/5$
32. $4/7 + 2/7 = 6/7$
33. $6/8 - 3/8 = 3/8$
34. $2/3 + 1/3 = 1$
35. $7/8 + 4/8 = 11/8$
36. $3/4 + 1/4 = 1$
37. $6/8 + 1/8 = 7/8$
38. $4/6 + 5/6 = 3/2$
39. $5/6 + 3/6 = 4/3$
40. $4/7 - 2/7 = 2/7$
41. $4/7 + 1/7 = 5/7$
42. $4/6 + 3/6 = 7/6$

List the factors

43. $3 \rightarrow 1, 3$
44. $29 \rightarrow 1, 29$
45. $8 \rightarrow 1, 2, 4, 8$
46. $31 \rightarrow 1, 31$
47. $7 \rightarrow 1, 7$
48. $4 \rightarrow 1, 2, 4$
49. $6 \rightarrow 1, 2, 3, 6$
50. $37 \rightarrow 1, 37$
51. $13 \rightarrow 1, 13$
52. $23 \rightarrow 1, 23$

Mixed Numbers

Adding mixed numbers

1. $5 \frac{1}{7} + 4 \frac{4}{7} = 9 \frac{5}{7}$
2. $5 \frac{1}{8} + 3 \frac{5}{8} = 8 \frac{3}{4}$
3. $4 \frac{4}{7} + 4 \frac{4}{7} = 9 \frac{1}{7}$
4. $2 \frac{1}{5} + 4 \frac{3}{5} = 6 \frac{4}{5}$
5. $2 \frac{3}{7} + 4 \frac{2}{7} = 6 \frac{5}{7}$
6. $2 \frac{3}{7} + 2 \frac{1}{7} = 4 \frac{4}{7}$
7. $3 \frac{6}{7} + 5 \frac{6}{7} = 9 \frac{5}{7}$
8. $4 \frac{3}{7} + 3 \frac{3}{7} = 7 \frac{6}{7}$
9. $4 \frac{3}{7} + 5 \frac{1}{7} = 9 \frac{4}{7}$
10. $1 \frac{2}{7} + 1 \frac{3}{7} = 2 \frac{5}{7}$
11. $5 \frac{2}{5} + 3 \frac{4}{5} = 9 \frac{1}{5}$
12. $1 \frac{5}{8} + 1 \frac{1}{8} = 2 \frac{3}{4}$
13. $2 \frac{4}{7} + 3 \frac{1}{7} = 5 \frac{5}{7}$
14. $1 \frac{4}{5} + 2 \frac{1}{5} = 4$
15. $2 \frac{1}{7} + 3 \frac{3}{7} = 5 \frac{4}{7}$
16. $2 \frac{3}{8} + 3 \frac{1}{8} = 5 \frac{1}{2}$
17. $2 \frac{2}{7} + 5 \frac{4}{7} = 7 \frac{6}{7}$
18. $1 \frac{5}{8} + 5 \frac{5}{8} = 7 \frac{1}{4}$
19. $5 \frac{1}{7} + 2 \frac{4}{7} = 7 \frac{5}{7}$
20. $2 \frac{1}{8} + 2 \frac{3}{8} = 4 \frac{1}{2}$
21. $5 \frac{4}{5} + 1 \frac{2}{5} = 7 \frac{1}{5}$
22. $4 \frac{3}{5} + 4 \frac{1}{5} = 8 \frac{4}{5}$
23. $3 \frac{1}{7} + 4 \frac{4}{7} = 7 \frac{5}{7}$
24. $1 \frac{3}{8} + 5 \frac{1}{8} = 6 \frac{1}{2}$
25. $2 \frac{2}{5} + 5 \frac{3}{5} = 8$
26. $5 \frac{1}{5} + 4 \frac{3}{5} = 9 \frac{4}{5}$
27. $2 \frac{1}{5} + 2 \frac{3}{5} = 4 \frac{4}{5}$
28. $2 \frac{4}{5} + 4 \frac{1}{5} = 7$
29. $1 \frac{1}{8} + 5 \frac{1}{8} = 6 \frac{1}{4}$
30. $4 \frac{1}{6} + 3 \frac{1}{6} = 7 \frac{1}{3}$
31. $5 \frac{2}{5} + 4 \frac{2}{5} = 9 \frac{4}{5}$
32. $1 \frac{5}{8} + 2 \frac{5}{8} = 4 \frac{1}{4}$
33. $2 \frac{1}{7} + 3 \frac{1}{7} = 5 \frac{2}{7}$
34. $1 \frac{3}{5} + 4 \frac{1}{5} = 5 \frac{4}{5}$
35. $3 \frac{1}{8} + 3 \frac{7}{8} = 7$
36. $4 \frac{4}{7} + 1 \frac{2}{7} = 5 \frac{6}{7}$
37. $5 \frac{5}{8} + 3 \frac{1}{8} = 8 \frac{3}{4}$
38. $4 \frac{6}{7} + 3 \frac{1}{7} = 8$
39. $2 \frac{2}{7} + 5 \frac{1}{7} = 7 \frac{3}{7}$
40. $2 \frac{2}{5} + 5 \frac{1}{5} = 7 \frac{3}{5}$
41. $5 \frac{1}{6} + 1 \frac{1}{6} = 6 \frac{1}{3}$

Multiples

42. $9 \rightarrow 9, 18, 27, 36, 45$

Answer Key (7 of 10)

Mixed Numbers (continued)

Multiples (continued)

- 43. $11 \rightarrow 11, 22, 33, 44, 55$
- 44. $20 \rightarrow 20, 40, 60, 80, 100$
- 45. $10 \rightarrow 10, 20, 30, 40, 50$
- 46. $8 \rightarrow 8, 16, 24, 32, 40$
- 47. $3 \rightarrow 3, 6, 9, 12, 15$
- 48. $24 \rightarrow 24, 48, 72, 96, 120$
- 49. $6 \rightarrow 6, 12, 18, 24, 30$
- 50. $4 \rightarrow 4, 8, 12, 16, 20$
- 51. $5 \rightarrow 5, 10, 15, 20, 25$

Tenths and Hundredths

What the digit is worth

- 1. 4.48 (8) $\rightarrow 0.08$
- 2. 9.66 (6) $\rightarrow 0.06$
- 3. 67.39 (9) $\rightarrow 0.09$
- 4. 2.73 (7) $\rightarrow 0.7$
- 5. 18.54 (4) $\rightarrow 0.04$
- 6. 27.80 (8) $\rightarrow 0.8$
- 7. 70.31 (1) $\rightarrow 0.01$
- 8. 29.13 (3) $\rightarrow 0.03$
- 9. 24.47 (7) $\rightarrow 0.07$
- 10. 1.88 (8) $\rightarrow 0.08$
- 11. 40.61 (6) $\rightarrow 0.6$
- 12. 0.22 (2) $\rightarrow 0.2$
- 13. 6.28 (8) $\rightarrow 0.08$
- 14. 48.52 (2) $\rightarrow 0.02$
- 15. 5.53 (5) $\rightarrow 0.5$
- 16. 9.31 (3) $\rightarrow 0.3$
- 17. 21.74 (4) $\rightarrow 0.04$
- 18. 55.63 (3) $\rightarrow 0.03$
- 19. 21.89 (9) $\rightarrow 0.09$
- 20. 26.66 (6) $\rightarrow 0.6$
- 21. 60.42 (2) $\rightarrow 0.02$
- 22. 23.22 (2) $\rightarrow 0.02$
- 23. 8.55 (5) $\rightarrow 0.5$
- 24. 19.35 (5) $\rightarrow 0.05$

Naming the place

- 25. $7.79 \rightarrow$ tenths
- 26. $26.31 \rightarrow$ hundredths
- 27. $54.78 \rightarrow$ hundredths
- 28. $30.33 \rightarrow$ tenths
- 29. $3.50 \rightarrow$ tenths
- 30. $25.57 \rightarrow$ hundredths

Tenths and Hundredths (continued)

Naming the place (continued)

- 31. $47.57 \rightarrow$ tenths
- 32. $7.96 \rightarrow$ hundredths
- 33. $15.93 \rightarrow$ hundredths
- 34. $22.43 \rightarrow$ hundredths
- 35. $40.25 \rightarrow$ hundredths
- 36. $29.37 \rightarrow$ hundredths
- 37. $18.98 \rightarrow$ tenths
- 38. $44.44 \rightarrow$ hundredths
- 39. $29.90 \rightarrow$ tenths
- 40. $8.72 \rightarrow$ hundredths
- 41. $11.88 \rightarrow$ tenths
- 42. $47.39 \rightarrow$ tenths
- 43. $8.62 \rightarrow$ hundredths
- 44. $10.52 \rightarrow$ hundredths
- 45. $45.71 \rightarrow$ tenths
- 46. $20.20 \rightarrow$ tenths
- 47. $31.67 \rightarrow$ tenths
- 48. $16.15 \rightarrow$ tenths

Prime or composite

- 49. $30 \rightarrow$ Composite (2×15)
- 50. $8 \rightarrow$ Composite (2×4)
- 51. $3 \rightarrow$ Prime
- 52. $4 \rightarrow$ Composite (2×2)
- 53. $36 \rightarrow$ Composite (2×18)
- 54. $32 \rightarrow$ Composite (2×16)
- 55. $48 \rightarrow$ Composite (2×24)
- 56. $18 \rightarrow$ Composite (2×9)
- 57. $24 \rightarrow$ Composite (2×12)
- 58. $26 \rightarrow$ Composite (2×13)

Comparing Decimals

Compare decimals

- 1. $5.4 > 2.5$
- 2. $2.0 < 2.71$
- 3. $6.5 > 3.7$
- 4. $5.9 > 2.37$
- 5. $2.8 < 6.0$
- 6. $3.4 = 3.40$
- 7. $0.81 < 7.6$
- 8. $1.7 < 5.4$
- 9. $4.0 > 0.89$
- 10. $4.4 > 0.6$
- 11. $6.2 > 2.65$

Answer Key (8 of 10)

Comparing Decimals (continued)

Compare decimals (continued)

12. $3.0 = 3.00$
13. $0.3 < 1.96$
14. $1.05 < 7.5$
15. $0.28 < 6.93$
16. $3.0 > 0.55$
17. $0.50 < 7.3$
18. $1.26 < 9.88$
19. $3.3 > 0.19$
20. $1.8 < 6.4$
21. $8.3 > 7.4$
22. $4.1 > 0.39$
23. $3.9 < 9.9$
24. $0.20 < 5.7$
25. $6.7 < 9.7$
26. $5.0 = 5.0$
27. $3.1 > 1.80$
28. $9.2 > 0.36$
29. $4.7 < 9.5$
30. $1.4 < 2.2$

Rounding numbers

31. $73 \approx 70$
32. $493 \approx 490$
33. $749 \approx 750$
34. $282 \approx 280$
35. $526 \approx 530$
36. $259 \approx 260$
37. $585 \approx 590$
38. $284 \approx 280$
39. $17 \approx 20$
40. $253 \approx 250$
41. $456 \approx 460$
42. $286 \approx 290$
43. $169 \approx 170$
44. $445 \approx 450$
45. $981 \approx 980$
46. $305 \approx 310$
47. $115 \approx 120$
48. $931 \approx 930$
49. $473 \approx 470$
50. $48 \approx 50$

Types of Angle

Acute, right, or obtuse

1. 15° : acute
2. 155° : obtuse
3. 120° : obtuse
4. 30° : acute
5. 160° : obtuse
6. 35° : acute
7. 50° : acute
8. 165° : obtuse
9. 150° : obtuse

Add and subtract fractions

10. $\frac{1}{6} + \frac{2}{6} = \frac{1}{2}$
11. $\frac{4}{6} + \frac{3}{6} = \frac{7}{6}$
12. $\frac{4}{5} + \frac{3}{5} = \frac{7}{5}$
13. $\frac{4}{7} + \frac{1}{7} = \frac{5}{7}$
14. $\frac{4}{6} - \frac{1}{6} = \frac{1}{2}$
15. $\frac{4}{7} + \frac{5}{7} = \frac{9}{7}$
16. $\frac{1}{2} + \frac{1}{2} = 1$
17. $\frac{2}{5} + \frac{3}{5} = 1$
18. $\frac{3}{4} + \frac{3}{4} = \frac{3}{2}$

Types of Triangle

Classify triangles by angles or sides

1. 7, 16, 17: scalene
2. 7, 15, 15: isosceles
3. 3, 6, 7: scalene
4. 5, 14, 14: isosceles
5. 8, 17, 20: scalene
6. 8, 18, 18: isosceles
7. 13, 13, 17: isosceles
8. 11, 13, 19: scalene

Adding mixed numbers

9. $4\frac{4}{7} + 1\frac{1}{7} = 5\frac{5}{7}$
10. $5\frac{2}{5} + 3\frac{1}{5} = 8\frac{3}{5}$
11. $2\frac{2}{5} + 5\frac{3}{5} = 8$
12. $4\frac{1}{7} + 3\frac{1}{7} = 7\frac{2}{7}$
13. $4\frac{2}{5} + 2\frac{1}{5} = 6\frac{3}{5}$
14. $2\frac{2}{5} + 2\frac{2}{5} = 4\frac{4}{5}$
15. $1\frac{2}{3} + 5\frac{1}{3} = 7$
16. $5\frac{1}{7} + 2\frac{4}{7} = 7\frac{5}{7}$

Lines of Symmetry

Lines of symmetry

1. equilateral triangle turned 45° : 3

Answer Key (9 of 10)

Lines of Symmetry (continued)

Lines of symmetry (continued)

2. rectangle: 2
3. isosceles triangle turned 45° : 1
4. regular hexagon: 6
5. regular hexagon turned 20° : 6
6. rectangle turned 20° : 2
7. regular octagon turned 45° : 8
8. square: 4
9. regular pentagon turned 20° : 5
10. equilateral triangle turned 20° : 3

What the digit is worth

11. 9.51 (5) $\rightarrow$ 0.5
12. 23.40 (4) $\rightarrow$ 0.4
13. 37.32 (2) $\rightarrow$ 0.02
14. 18.21 (1) $\rightarrow$ 0.01
15. 6.45 (4) $\rightarrow$ 0.4
16. 27.33 (3) $\rightarrow$ 0.3
17. 48.18 (1) $\rightarrow$ 0.1
18. 23.63 (6) $\rightarrow$ 0.6
19. 29.23 (2) $\rightarrow$ 0.2
20. 13.81 (8) $\rightarrow$ 0.8

Number Patterns

Number patterns

1. 5, [10], 15, 20, 25
2. 6, 14, 22, [30], 38
3. 5, 12, [19], 26, 33
4. 5, 13, 21, [29], 37
5. 7, 14, [21], 28, 35
6. 2, 7, [12], 17, 22
7. 5, 8, 11, [14], 17
8. 6, 13, [20], 27, 34
9. 8, 16, 24, [32], 40
10. 8, 16, [24], 32, 40
11. 3, [6], 9, 12, 15
12. 4, 16, 28, [40], 52
13. 6, [9], 12, 15, 18
14. 6, 11, 16, [21], 26
15. 1, 9, [17], 25, 33
16. 6, 9, 12, [15], 18
17. 1, [7], 13, 19, 25
18. 4, [11], 18, 25, 32
19. 5, [12], 19, 26, 33
20. 4, 6, [8], 10, 12

Number Patterns (continued)

Number patterns (continued)

21. 5, 13, [21], 29, 37
22. 8, 17, [26], 35, 44
23. 8, 15, 22, [29], 36
24. 9, 11, [13], 15, 17

Compare decimals

25. $1.4 < 2.2$
26. $3.4 > 3.28$
27. $1.05 < 1.29$
28. $1.9 > 0.04$
29. $1.2 < 3.3$
30. $4.0 > 2.84$
31. $6.2 > 1.8$
32. $1.4 < 1.8$
33. $0.9 = 0.9$
34. $4.4 < 5.79$

Line Plots and Bar Graphs

Line plots

1. 3 at 7 inches, 2 at 4 inches: $3 - 2 = 1$
2. $2 + 2 + 1 + 3 + 2 + 1 + 4 = 15$
3. longer than 4 inches — 11 plants

Bar graphs

4. Running is $8 - 2 = 6$ more than Football
5. Swimming is $8 - 6 = 2$ fewer than Running
6. $2 + 6 + 8 + 7 = 23$

Spot the Mistake

Spot the error

1. $39 + 52 = 91$, not 81 (a ten was not carried)
2. $27 - 11 = 16$, not 17 (the answer is one out)
3. $53 - 20 = 33$, not 23 (a ten was paid back that had never been borrowed)
4. $33 + 42 = 75$, not 76 (the answer is one out)
5. $27 + 26 = 53$, not 52 (the answer is one out)
6. $13 + 26 = 39$, not 38 (the answer is one out)
7. $47 - 13 = 34$, not 24 (a ten was paid back that had never been borrowed)
8. $52 + 24 = 76$, not 77 (the answer is one out)

Review: Multiplying

Multiply multi-digit numbers

1. $273 \times 37 = 10101$
2. $721 \times 11 = 7931$

Answer Key (10 of 10)

Review: Multiplying (continued)

Multiply multi-digit numbers (continued)

3. $993 \times 29 = 28797$
4. $542 \times 29 = 15718$
5. $189 \times 34 = 6426$
6. $115 \times 21 = 2415$
7. $933 \times 28 = 26124$
8. $235 \times 37 = 8695$
9. $177 \times 54 = 9558$
10. $932 \times 13 = 12116$
11. $452 \times 54 = 24408$
12. $180 \times 14 = 2520$
13. $360 \times 29 = 10440$
14. $392 \times 55 = 21560$
15. $279 \times 37 = 10323$

Number patterns

16. 8, [20], 32, 44, 56
17. 3, 8, 13, [18], 23
18. 2, [14], 26, 38, 50
19. 3, 14, [25], 36, 47
20. 7, 11, 15, [19], 23
21. 1, [7], 13, 19, 25
22. 3, 15, 27, [39], 51
23. 1, 11, [21], 31, 41
24. 7, 18, 29, [40], 51
25. 6, 17, [28], 39, 50

Review: Division and Factors

Division with remainders

1. $7 \div 2 = 3 \text{ R } 1$
2. $27 \div 5 = 5 \text{ R } 2$
3. $57 \div 5 = 11 \text{ R } 2$
4. $28 \div 6 = 4 \text{ R } 4$
5. $11 \div 2 = 5 \text{ R } 1$
6. $25 \div 6 = 4 \text{ R } 1$
7. $47 \div 5 = 9 \text{ R } 2$
8. $22 \div 4 = 5 \text{ R } 2$
9. $25 \div 8 = 3 \text{ R } 1$
10. $14 \div 5 = 2 \text{ R } 4$
11. $43 \div 6 = 7 \text{ R } 1$
12. $26 \div 4 = 6 \text{ R } 2$
13. $34 \div 8 = 4 \text{ R } 2$
14. $46 \div 5 = 9 \text{ R } 1$

Review: Division and Factors (continued)

List the factors

15. $4 \rightarrow 1, 2, 4$
16. $23 \rightarrow 1, 23$
17. $39 \rightarrow 1, 3, 13, 39$
18. $17 \rightarrow 1, 17$
19. $11 \rightarrow 1, 11$
20. $5 \rightarrow 1, 5$
21. $14 \rightarrow 1, 2, 7, 14$
22. $25 \rightarrow 1, 5, 25$
23. $31 \rightarrow 1, 31$
24. $9 \rightarrow 1, 3, 9$
25. $27 \rightarrow 1, 3, 9, 27$
26. $37 \rightarrow 1, 37$
27. $2 \rightarrow 1, 2$
28. $8 \rightarrow 1, 2, 4, 8$

Solutions (1 of 19)

Place Value in Four-Digit Numbers

The value of a digit

1. $772\underline{3} \rightarrow \underline{\quad}$

number: 7 7 2 3
3 $\rightarrow$ 3

Each column is worth ten times the one to its right. Counting them is what tells you the value; the name on its own is the thing that goes wrong under pressure.

Count in from the right: the 3 sits in the ones.

Its VALUE is what it is worth there, not the digit itself: 3 in the ones is 3. That gap between "3" and "3" is the whole of this topic.

2. $462\underline{7} \rightarrow \underline{\quad}$

number: 4 6 2 7
7 $\rightarrow$ 7

Each column is worth ten times the one to its right. Counting them is what tells you the value; the name on its own is the thing that goes wrong under pressure.

Count in from the right: the 7 sits in the ones.

Its VALUE is what it is worth there, not the digit itself: 7 in the ones is 7. That gap between "7" and "7" is the whole of this topic.

Rounding to the Nearest Ten

Rounding numbers

1. $713 \approx \underline{\quad}$

7 1 3
713 $\rightarrow$ 710

Find the tens digit first — that is the one that might change.

Now look at the single digit just after it: 3. Nothing further along matters at all.

3 is less than 5, so 713 is nearer 710 than 720. It stays down.

So 713 to the nearest ten is 710.

Solutions (2 of 19)

Rounding to the Nearest Ten (continued)

Rounding numbers (continued)

2. $172 \approx \underline{\hspace{2cm}}$

$$\begin{array}{ccc} 1 & 7 & 2 \\ 172 & \rightarrow & 170 \end{array}$$

Find the tens digit first — that is the one that might change.

Now look at the single digit just after it: 2. Nothing further along matters at all.

2 is less than 5, so 172 is nearer 170 than 180. It stays down.

So 172 to the nearest ten is 170.

Estimating a sum

28. $126 + 191 \approx \underline{\hspace{2cm}}$

$$\begin{array}{rcl} 126 & + & 191 \\ 130 & + & 191 \\ 130 & + & 190 \\ & 320 & \end{array}$$

Do not work it out exactly. Round each number first. 126 is nearer 130 than 120, so to the nearest ten it becomes 130.

191 is nearer 190 than 200, so to the nearest ten it becomes 190.

Now it is easy enough to do in your head: $130 + 190 = 320$.

The exact answer is 317, so the estimate of 320 is 3 away. Close enough to catch a wrong answer with, and you did it in your head.

29. $161 + 235 \approx \underline{\hspace{2cm}}$

$$\begin{array}{rcl} 161 & + & 235 \\ 160 & + & 235 \\ 160 & + & 240 \\ & 400 & \end{array}$$

Do not work it out exactly. Round each number first. 161 is nearer 160 than 170, so to the nearest ten it becomes 160.

235 sits exactly halfway between 230 and 240, and a half always rounds up — so 235 becomes 240.

Now it is easy enough to do in your head: $160 + 240 = 400$.

The exact answer is 396, so the estimate of 400 is 4 away. Close enough to catch a wrong answer with, and you did it in your head.

Solutions (3 of 19)

Column Addition and Subtraction

Add and subtract multi-digit numbers

1.

$$\begin{array}{r} 284 \\ + 201 \\ \hline 485 \end{array}$$

284 + 201, written in columns. Start at the RIGHT, with the ones.

4 plus 1 makes 5. Write 5 in the ones.

8 plus 0 makes 8. Write 8 in the tens.

2 plus 2 makes 4. Write 4 in the hundreds.

That is the whole sum: $284 + 201 = 485$.

2.

$$\begin{array}{r} 618 \\ - 339 \\ \hline 339 \end{array}$$

678 – 339, written in columns. Start at the RIGHT, with the ones.

8 is too small to take 9 from, so a ten comes across from the left: the ones now holds 18. $18 - 9 = 9$.

This column gave a ten to the right, so it is now 6, not 7. $6 - 3 = 3$.

6 take away 3 leaves 3. Write it in the hundreds.

That is the whole sum: $678 - 339 = 339$.

Multiplying Two Digits by One

Multiply multi-digit numbers

1.

$$\begin{array}{r} 34 \\ \times 3 \\ \hline 102 \end{array}$$

34×3 , set out in columns. Multiply one place at a time, starting at the ones on the RIGHT.

The ones: $4 \times 3 = 12$. Write the 2 and carry the 1.

The tens: $3 \times 3 = 9$, and the 1 carried over makes 10. Nothing further to carry into, so all of 10 is written down.

So $34 \times 3 = 102$.

2.

$$\begin{array}{r} 71 \\ \times 2 \\ \hline 142 \end{array}$$

71×2 , set out in columns. Multiply one place at a time, starting at the ones on the RIGHT.

The ones: $1 \times 2 = 2$. Write the 2.

The tens: $7 \times 2 = 14$. Nothing further to carry into, so all of 14 is written down.

So $71 \times 2 = 142$.

Solutions (4 of 19)

Division with Remainders

Division with remainders

1.

$$\begin{array}{r} 3 \\ 8 \overline{)31} \\ \underline{24} \\ 7 \end{array}$$

31 shared into groups of 8. Long division starts at the LEFT — the other way round from adding.

Start at the left. How many 8s fit into 31? 3 of them — write the 3 on top. $3 \times 8 = 24$, and $31 - 24$ leaves 7.

Nothing is left to bring down, and 7 is too small to divide again — so that is the remainder. $31 \div 8 = 3$ remainder 7.

2.

$$\begin{array}{r} 10 \\ 3 \overline{)32} \\ \underline{3} \\ 2 \end{array}$$

32 shared into groups of 3. Long division starts at the LEFT — the other way round from adding.

Start at the left. How many 3s fit into 3? 1 of them — write the 1 on top. $1 \times 3 = 3$, and $3 - 3$ leaves 0. Bring down the 2, which makes 2. 3 does not go into 2, so a 0 goes on top.

Nothing is left to bring down, and 2 is too small to divide again — so that is the remainder. $32 \div 3 = 10$ remainder 2.

Word problems: dividing

25. 6 notebooks are arranged in 2 rows, with the same number in every row.

How many notebooks stand in one row? ____

asked:

How many notebooks stand in one row?

$$6 \div 2 = 3$$

3 notebooks

Read it through once and do NOTHING. Grabbing the numbers on the first read means choosing an operation before you know the story, and that choice is the only hard part of a word problem.

Now the numbers: 6 and 2. Finding them is not the same as knowing what to do with them — that comes next, and it comes from the story rather than from the numbers.

One amount split into equal parts. So this one is a division: $6 \div 2$.

$6 \div 2 = 3$ notebooks. And answer the question that was ASKED — "How many notebooks stand in one row?" — in notebooks, because the sum on its own is not yet an answer.

Solutions (5 of 19)

Division with Remainders (continued)

Word problems: dividing (continued)

26. 32 croissants are arranged with 8 in each row. Dev also keeps 5 cupcakes.

How many rows does that make? ____

asked: How many rows does that make?

$$32 \div 8 = 4$$

4 rows

Read it through once and do NOTHING. Grabbing the numbers on the first read means choosing an operation before you know the story, and that choice is the only hard part of a word problem.

Now the numbers: 32 and 8. Finding them is not the same as knowing what to do with them — that comes next, and it comes from the story rather than from the numbers.

One amount split into equal parts. So this one is a division: $32 \div 8$.

$32 \div 8 = 4$ rows. And answer the question that was ASKED — "How many rows does that make?" — in rows, because the sum on its own is not yet an answer.

Long Division

Long division

1.

$$\begin{array}{r} 55 \\ 6 \overline{) 330} \\ \underline{30} \\ 30 \\ \underline{30} \\ 0 \end{array}$$

330 shared into groups of 6. Long division starts at the LEFT — the other way round from adding.

Start at the left. How many 6s fit into 33? 5 of them — write the 5 on top. $5 \times 6 = 30$, and $33 - 30$ leaves 3. Bring down the 0, which makes 30.

How many 6s fit into 30? 5 — write it on top. $5 \times 6 = 30$, and $30 - 30$ leaves 0.

Nothing is left to bring down and nothing is left over. $330 \div 6 = 55$.

Solutions (6 of 19)

Long Division (continued)

Long division (continued)

2.

$$\begin{array}{r} 31 \\ 9 \overline{)279} \\ \underline{27} \\ 9 \\ \underline{9} \\ 0 \end{array}$$

279 shared into groups of 9. Long division starts at the LEFT — the other way round from adding.

Start at the left. How many 9s fit into 27? 3 of them — write the 3 on top. $3 \times 9 = 27$, and $27 - 27$ leaves 0. Bring down the 9, which makes 9.

How many 9s fit into 9? 1 — write it on top. $1 \times 9 = 9$, and $9 - 9$ leaves 0.

Nothing is left to bring down and nothing is left over. $279 \div 9 = 31$.

Long Division with Remainders

Long division with remainders

1.

$$\begin{array}{r} 25 \\ 5 \overline{)126} \\ \underline{10} \\ 26 \\ \underline{25} \\ 1 \end{array}$$

126 shared into groups of 5. Long division starts at the LEFT — the other way round from adding.

Start at the left. How many 5s fit into 12? 2 of them — write the 2 on top. $2 \times 5 = 10$, and $12 - 10$ leaves 2. Bring down the 6, which makes 26.

How many 5s fit into 26? 5 — write it on top. $5 \times 5 = 25$, and $26 - 25$ leaves 1.

Nothing is left to bring down, and 1 is too small to divide again — so that is the remainder. $126 \div 5 = 25$ remainder 1.

2.

$$\begin{array}{r} 12 \\ 9 \overline{)115} \\ \underline{9} \\ 25 \\ \underline{18} \\ 7 \end{array}$$

115 shared into groups of 9. Long division starts at the LEFT — the other way round from adding.

Start at the left. How many 9s fit into 11? 1 of them — write the 1 on top. $1 \times 9 = 9$, and $11 - 9$ leaves 2. Bring down the 5, which makes 25.

How many 9s fit into 25? 2 — write it on top. $2 \times 9 = 18$, and $25 - 18$ leaves 7.

Nothing is left to bring down, and 7 is too small to divide again — so that is the remainder. $115 \div 9 = 12$ remainder 7.

Solutions (7 of 19)

Factors

List the factors

1. **19** → _____

so far: 1 19

Factors come in PAIRS — every one you find hands you a second. So work in from both ends rather than trying every number in turn.

$1 \times 19 = 19$, so 1 and 19 are both factors.

The pair has met in the middle, so the list is finished: 1, 19. 2 factors.

2. **2** → _____

so far: 1 2

Factors come in PAIRS — every one you find hands you a second. So work in from both ends rather than trying every number in turn.

$1 \times 2 = 2$, so 1 and 2 are both factors.

The pair has met in the middle, so the list is finished: 1, 2. 2 factors.

Multiples

Multiples

1. **13** → _____

count: 13 26 39 52
65

Multiples of 13 are what you get COUNTING IN 13s — they start at 13 and only get bigger. (Factors are the other way: they go into 13 and are never bigger than it. The two words are swapped more often than either is misunderstood.)

So just count: 13, 26, 39, 52, 65. Each one is 13 more than the last — no dividing, no testing.

Solutions (8 of 19)

Multiples (continued)

Multiples (continued)

2. 7 → _____

count: 7 14 21 28 35

Multiples of 7 are what you get COUNTING IN 7s — they start at 7 and only get bigger. (Factors are the other way: they go into 7 and are never bigger than it. The two words are swapped more often than either is misunderstood.)

So just count: 7, 14, 21, 28, 35. Each one is 7 more than the last — no dividing, no testing.

Prime and Composite Numbers

Prime or composite

1. 16 Prime / Composite

tried: 2
 $16 \div 2 = 8$

A prime has exactly two factors: 1 and itself. So the question is whether anything ELSE divides into 16.

You do not have to try everything up to 16. Factors come in pairs, so if one were bigger than 4 its partner would be smaller — and you would have found that one first. Testing up to 4 is enough.

2 goes into 16 exactly ($16 \div 2 = 8$), and that is one factor too many. 16 is composite — no need to test any further.

2. 10 Prime / Composite

tried: 2
 $10 \div 2 = 5$

A prime has exactly two factors: 1 and itself. So the question is whether anything ELSE divides into 10.

You do not have to try everything up to 10. Factors come in pairs, so if one were bigger than 3 its partner would be smaller — and you would have found that one first. Testing up to 3 is enough.

2 goes into 10 exactly ($10 \div 2 = 5$), and that is one factor too many. 10 is composite — no need to test any further.

Solutions (9 of 19)

Adding and Subtracting Fractions

Add and subtract fractions

1. $\frac{6}{7} + \frac{2}{7} = \text{—}$

$$\begin{array}{r} \frac{6}{7} + \frac{2}{7} \\ \frac{6}{7} + \frac{2}{7} = \frac{8}{7} \end{array}$$

Both are sevenths, so the pieces are already the same size. That is what lets them be counted together.

6 of them plus 2 of them is 8 of them: $\frac{8}{7}$. The bottom does not change — the pieces did not change size.

2. $\frac{4}{7} + \frac{4}{7} = \text{—}$

$$\begin{array}{r} \frac{4}{7} + \frac{4}{7} \\ \frac{4}{7} + \frac{4}{7} = \frac{8}{7} \end{array}$$

Both are sevenths, so the pieces are already the same size. That is what lets them be counted together.

4 of them plus 4 of them is 8 of them: $\frac{8}{7}$. The bottom does not change — the pieces did not change size.

Mixed Numbers

Adding mixed numbers

1. $5\frac{1}{7} + 4\frac{4}{7} = \text{—}$

$$\begin{array}{r} \frac{1}{7} + \frac{4}{7} = \frac{5}{7} \\ 5 + 4 = 9 \\ = 9\frac{5}{7} \end{array}$$

A mixed number is a whole and a fraction stuck together. Deal with them separately — wholes with wholes, sevenths with sevenths.

The fractions go together first: $\frac{1}{7} + \frac{4}{7} = \frac{5}{7}$.

Then the wholes: $5 + 4 = 9$.

So the answer is $9\frac{5}{7}$.

Solutions (10 of 19)

Mixed Numbers (continued)

Adding mixed numbers (continued)

2. $5\frac{1}{8} + 3\frac{5}{8} = \underline{\quad}$

$$\begin{array}{rclcl} \frac{1}{8} & + & \frac{5}{8} & = & \frac{6}{8} \\ 5 & + & 3 & = & 8 \\ & & & = & 8\frac{3}{4} \end{array}$$

A mixed number is a whole and a fraction stuck together. Deal with them separately — wholes with wholes, eighths with eighths.

The fractions go together first: $\frac{1}{8} + \frac{5}{8} = \frac{6}{8}$.

Then the wholes: $5 + 3 = 8$.

$\frac{6}{8}$ is the same amount as $\frac{3}{4}$ written in bigger pieces.

So the answer is $8\frac{3}{4}$.

Tenths and Hundredths

What the digit is worth

1. $4.4\mathbf{8} \rightarrow \underline{\quad}$

number: 4 . 4 **8**
8 $\rightarrow$ **0.08**

The places do not mirror each other around the point — there is no "oneths". Going right they are tenths, hundredths, thousandths: each one ten times SMALLER than the last.

Count in from the point: the 8 sits in the hundredths.

Its VALUE is what it is worth there, not the digit itself: 8 in the hundredths is 0.08. That gap between "8" and "0.08" is the whole of this topic.

2. $9.6\mathbf{6} \rightarrow \underline{\quad}$

number: 9 . 6 **6**
6 $\rightarrow$ **0.06**

The places do not mirror each other around the point — there is no "oneths". Going right they are tenths, hundredths, thousandths: each one ten times SMALLER than the last.

Count in from the point: the 6 sits in the hundredths.

Its VALUE is what it is worth there, not the digit itself: 6 in the hundredths is 0.06. That gap between "6" and "0.06" is the whole of this topic.

Solutions (11 of 19)

Comparing Decimals

Compare decimals

1. $5.4 \square 2.5$

$$\begin{array}{ccc} 5.4 & ? & 2.5 \\ 54 \text{ tenths} & > & 25 \text{ tenths} \\ 5.4 & > & 2.5 \end{array}$$

Both have 1 figure after the point already, so they are counting the same sized pieces.

Now they are both tenths: 54 against 25. 54 is more. So $5.4 > 2.5$.

2. $2.0 \square 2.71$

$$\begin{array}{ccc} 2.00 & ? & 2.71 \\ 200 \text{ hundredths} & < & 271 \text{ hundredths} \\ 2.0 & < & 2.71 \end{array}$$

These count different sized pieces — one is in bigger pieces and the other is not. Longer does NOT mean bigger with decimals, so the first job is to make the pieces match.

Write a zero on the end of the shorter one. 2.0 is the same amount as 2.00 — a zero on the END of a decimal changes nothing.

Now they are both hundredths: 200 against 271. 271 is more. So $2.0 < 2.71$.

Solutions (12 of 19)

Types of Angle

Acute, right, or obtuse

1.



acute

right

obtuse

15° vs 90°
 $15 < 90$
 $15^\circ \rightarrow$ acute

Do not judge it by how big it looks — a long pair of arms makes an angle look wider than it is, and the arms are not the angle. Compare it to a RIGHT ANGLE instead; that is the one you can picture exactly.

15 is less than 90.

Smaller than a right angle is ACUTE. (A useful check: it fits inside the corner of a page.)

2.



acute

right

obtuse

155° vs 90°
 $155 > 90$
 $155^\circ \rightarrow$ obtuse

Do not judge it by how big it looks — a long pair of arms makes an angle look wider than it is, and the arms are not the angle. Compare it to a RIGHT ANGLE instead; that is the one you can picture exactly.

155 is more than 90.

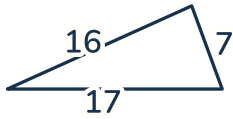
Bigger than a right angle is OBTUSE. (It cannot fit inside the corner of a page — but it is still less than a straight line, which would be 180.)

Solutions (13 of 19)

Types of Triangle

Classify triangles by angles or sides

1.



equilateral

isosceles

scalene

sides: 7 cm 16 cm 17 cm

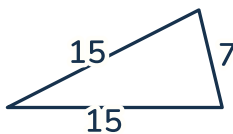
scalene

Every triangle has TWO names — one for its angles and one for its sides — and it has both at once. This question is asking for the SIDE name, so look only at the side lengths.

Count how many are the SAME, not how long they are: no two match.

No two equal is SCALENE.

2.



equilateral

isosceles

scalene

sides: 7 cm 15 cm 15 cm

isosceles

Every triangle has TWO names — one for its angles and one for its sides — and it has both at once. This question is asking for the SIDE name, so look only at the side lengths.

Count how many are the SAME, not how long they are: two match and one does not.

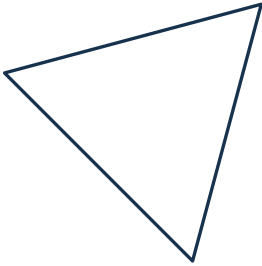
Exactly two equal is ISOSCELES. (Equilateral counts as isosceles too, but when all three match the question wants the more exact name.)

Solutions (14 of 19)

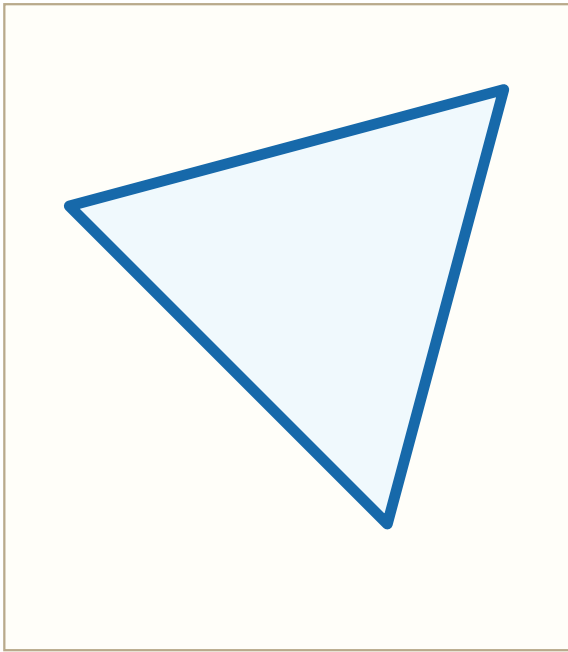
Lines of Symmetry

Lines of symmetry

1.



— lines



A line of symmetry is a FOLD: crease along it and the two halves must land exactly on each other. Not "looks balanced" — land on each other.

Here is one of them. Crease along that line and the part on the left lands exactly on the part on the right — that is what makes it count.

Every other crease that works is drawn now — 3 altogether for an equilateral triangle.

Solutions (15 of 19)

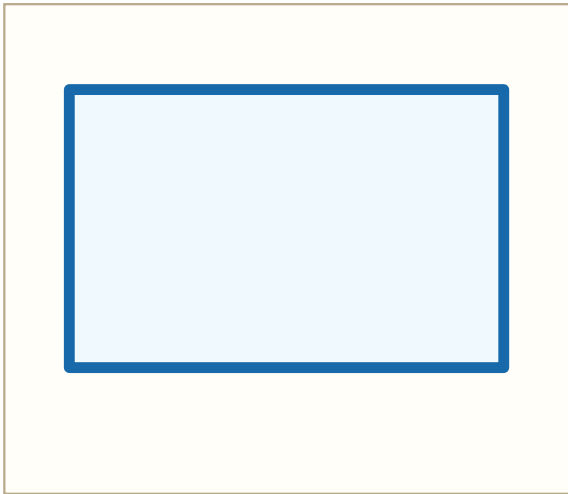
Lines of Symmetry (continued)

Lines of symmetry (continued)

2.



— lines



A line of symmetry is a FOLD: crease along it and the two halves must land exactly on each other. Not "looks balanced" — land on each other.

Here is one of them. Crease along that line and the part on the left lands exactly on the part on the right — that is what makes it count.

Every other crease that works is drawn now — 2 altogether for a rectangle.

Number Patterns

Number patterns

1. 5, —, 15, 20, 25

5 10 15 20 25

Find the rule first, from two numbers you can actually see — never from the gap.

15 to 20 is + 5. One pair is a guess, though — check it against another.

$20 + 5 = 25$, so the rule holds. Two pairs agreeing is what turns a guess into the rule.

Now apply it to the gap: $5 + 5 = 10$.

Check it against the number already after the gap: $10 + 5 = 15$, which is what is there. The missing number is 10.

Solutions (16 of 19)

Number Patterns (continued)

Number patterns (continued)

2. 6, 14, 22, ____, 38

6 14 22 **30** **38**

Find the rule first, from two numbers you can actually see — never from the gap.

6 to 14 is + 8. One pair is a guess, though — check it against another.

$14 + 8 = 22$, so the rule holds. Two pairs agreeing is what turns a guess into the rule.

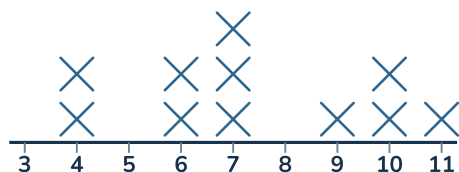
Now apply it to the gap: $22 + 8 = 30$.

Check it against the number already after the gap: $30 + 8 = 38$, which is what is there. The missing number is 30.

Line Plots and Bar Graphs

Line plots

1. Length of our pencils (inches)



How many more pencils measured 7 inches than 4 inches?

—

4 inches: 2 pencils
6 inches: 2 pencils
7 inches: 3 pencils
9 inches: 1 pencils
10 inches: 2 pencils
11 inches: 1 pencils

1

A line plot is not bars to read off a scale — each mark is one pencil. So the number **ALONG** the bottom and the number of marks **ABOVE** it are two different quantities, and the question wants one of them.

Counting the stacks: 2 at 4, 2 at 6, 3 at 7, 1 at 9, 2 at 10, 1 at 11.

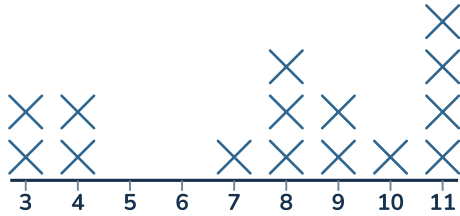
3 at 7 inches, 2 at 4 inches: $3 - 2 = 1$ — so the answer is 1.

Solutions (17 of 19)

Line Plots and Bar Graphs (continued)

Line plots (continued)

2. Height of the bean plants (inches)



How many plants were measured altogether?

—

3 inches: 2 plants

4 inches: 2 plants

7 inches: 1 plants

8 inches: 3 plants

9 inches: 2 plants

10 inches: 1 plants

11 inches: 4 plants

15

A line plot is not bars to read off a scale — each mark is one plant. So the number **ALONG** the bottom and the number of marks **ABOVE** it are two different quantities, and the question wants one of them.

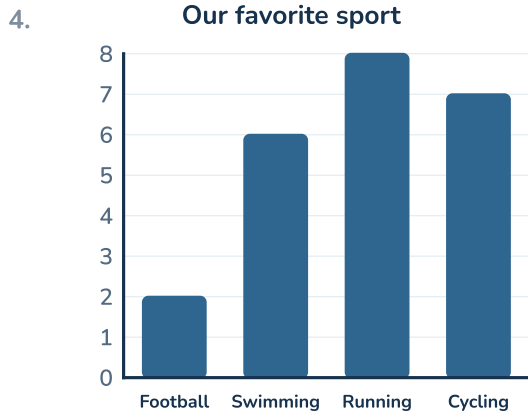
Counting the stacks: 2 at 3, 2 at 4, 1 at 7, 3 at 8, 2 at 9, 1 at 10, 4 at 11.

$2 + 2 + 1 + 3 + 2 + 1 + 4 = 15$ — so the answer is 15.

Solutions (18 of 19)

Line Plots and Bar Graphs (continued)

Bar graphs



How many more chose running than chose football?

—

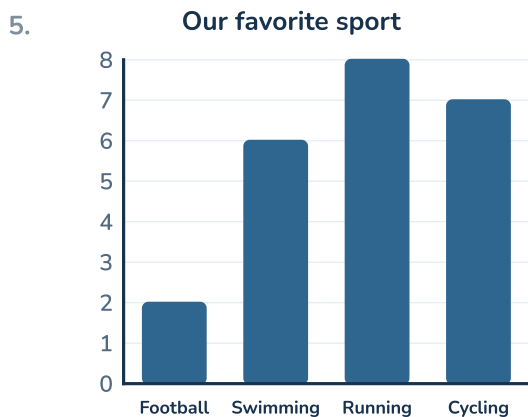
Football: 2 up → 2 votes
Swimming: 6 up → 6 votes
Running: 8 up → 8 votes
Cycling: 7 up → 7 votes

6 votes

Check the key first, every time. Here one square is one vote, so counting is enough — but that is a fact to check, not to assume.

So the counts read straight off: Football 2, Swimming 6, Running 8, Cycling 7.

Now the question, on the NUMBERS rather than the marks: Running is $8 - 2 = 6$ more than Football. So the answer is 6 votes.



How many fewer chose swimming than chose running?

—

Football: 2 up → 2 votes
Swimming: 6 up → 6 votes
Running: 8 up → 8 votes
Cycling: 7 up → 7 votes

2 votes

Check the key first, every time. Here one square is one vote, so counting is enough — but that is a fact to check, not to assume.

So the counts read straight off: Football 2, Swimming 6, Running 8, Cycling 7.

Now the question, on the NUMBERS rather than the marks: Swimming is $8 - 6 = 2$ fewer than Running. So the answer is 2 votes.

Solutions (19 of 19)

Spot the Mistake

Spot the error

1. Noor wrote $39 + 52 = 81$. Write the correct answer. ____

Why?

$$\begin{array}{rcl} 39 & + & 52 & = & 91 \\ \text{they wrote:} & & & & 81 \end{array}$$

Do not check by reading their working. Somebody else's answer is the most persuasive thing on the page, and rereading it is how you end up agreeing with it — work the sum yourself first, then compare.

On your own: $39 + 52 = 91$.

Now compare. They wrote 81, and it should be 91 — out by 10. The correct answer is 91.

2. Imani wrote $27 - 11 = 17$. Write the correct answer. ____

Why?

$$\begin{array}{rcl} 27 & - & 11 & = & 16 \\ \text{they wrote:} & & & & 17 \end{array}$$

Do not check by reading their working. Somebody else's answer is the most persuasive thing on the page, and rereading it is how you end up agreeing with it — work the sum yourself first, then compare.

On your own: $27 - 11 = 16$.

Now compare. They wrote 17, and it should be 16 — out by 1. The correct answer is 16.