

# Grade 3 Math Workbook

19 lessons · printable · answer key at the back

Name \_\_\_\_\_

Date \_\_\_\_\_

## Contents

|                                             |    |
|---------------------------------------------|----|
| Chapter 1 · Multiplication Facts .....      |    |
| 1-1 Equal Groups: the 2 Times Table .....   | 1  |
| 1-2 The 5 and 10 Times Tables .....         | 2  |
| 1-3 The 3 and 4 Times Tables .....          | 3  |
| 1-4 The 6 and 7 Times Tables .....          | 4  |
| 1-5 The 8 and 9 Times Tables .....          | 5  |
| 1-6 Mixed Times Tables .....                | 6  |
| Chapter 2 · Division Facts .....            |    |
| 2-1 Dividing by 2, 5 and 10 .....           | 7  |
| 2-2 Dividing by 3, 4 and 6 .....            | 8  |
| 2-3 Dividing by 7, 8 and 9 .....            | 9  |
| Chapter 3 · Word Problems .....             |    |
| 3-1 Word Problems: Multiplication .....     | 10 |
| 3-2 Word Problems: Division .....           | 11 |
| Chapter 4 · Patterns, Time and Shapes ..... |    |
| 4-1 Number Patterns .....                   | 12 |
| 4-2 True, False or Fix It .....             | 13 |
| 4-3 Telling the Time .....                  | 14 |
| 4-4 Naming Shapes .....                     | 15 |
| 4-5 Area by Counting Squares .....          | 16 |
| 4-6 Perimeter .....                         | 17 |
| 4-7 Bar Graphs and Line Plots .....         | 18 |
| Chapter 5 · Review .....                    |    |
| 5-1 Review: Times Tables and Division ..... | 21 |

# Equal Groups: the 2 Times Table

WORKED EXAMPLE

$$10 \times 2 = \underline{20}$$

## 1. The 2 times table

Work out each product.

1  $2 \times 2 = \underline{\quad}$

2  $4 \times 2 = \underline{\quad}$

3  $6 \times 2 = \underline{\quad}$

4  $3 \times 2 = \underline{\quad}$

5  $1 \times 2 = \underline{\quad}$

6  $5 \times 2 = \underline{\quad}$

7  $9 \times 2 = \underline{\quad}$

8  $7 \times 2 = \underline{\quad}$

9  $8 \times 2 = \underline{\quad}$

## 2. Word problems

Read each problem. Write the answer.

- 10 Ravi filled 2 feed bags with 7 treats in each.

**How many treats does Ravi have in all?**

---

# The 5 and 10 Times Tables

WORKED EXAMPLE

$$6 \times 5 = \underline{30}$$

## 3. The 5 times table

Work out each product.

1  $3 \times 5 = \underline{\quad}$

2  $2 \times 5 = \underline{\quad}$

3  $5 \times 5 = \underline{\quad}$

4  $4 \times 5 = \underline{\quad}$

## 4. The 10 times table

Work out each product.

5  $4 \times 10 = \underline{\quad}$

6  $2 \times 10 = \underline{\quad}$

7  $5 \times 10 = \underline{\quad}$

8  $3 \times 10 = \underline{\quad}$

9  $1 \times 10 = \underline{\quad}$

10  $6 \times 10 = \underline{\quad}$

## 5. Word problems

Read each problem. Write the answer.

- 11 Milo filled 6 hutches with 2 food pellets in each.

**How many food pellets does Milo have in all?**

---

# The 3 and 4 Times Tables

WORKED EXAMPLE

$$7 \times 3 = \underline{21}$$

## 6. The 3 times table

Work out each product.

1  $1 \times 3 = \underline{\quad}$

2  $4 \times 3 = \underline{\quad}$

3  $5 \times 3 = \underline{\quad}$

4  $3 \times 3 = \underline{\quad}$

5  $2 \times 3 = \underline{\quad}$

## 7. The 4 times table

Work out each product.

6  $3 \times 4 = \underline{\quad}$

7  $1 \times 4 = \underline{\quad}$

8  $5 \times 4 = \underline{\quad}$

9  $4 \times 4 = \underline{\quad}$

10  $2 \times 4 = \underline{\quad}$

## 8. Word problems

Read each problem. Write the answer.

- 11 Ana filled 5 shelves with 2 books in each.

**How many books does Ana have in all?**

---

# The 6 and 7 Times Tables

WORKED EXAMPLE

$$8 \times 6 = \underline{48}$$

## 9. The 6 times table

Work out each product.

1  $2 \times 6 = \underline{\quad}$

2  $5 \times 6 = \underline{\quad}$

3  $3 \times 6 = \underline{\quad}$

4  $4 \times 6 = \underline{\quad}$

5  $1 \times 6 = \underline{\quad}$

6  $7 \times 6 = \underline{\quad}$

7  $9 \times 6 = \underline{\quad}$

8  $6 \times 6 = \underline{\quad}$

9  $10 \times 6 = \underline{\quad}$

## 10. The 7 times table

Work out each product.

10  $3 \times 7 = \underline{\quad}$

11  $7 \times 7 = \underline{\quad}$

12  $2 \times 7 = \underline{\quad}$

13  $1 \times 7 = \underline{\quad}$

14  $4 \times 7 = \underline{\quad}$

15  $5 \times 7 = \underline{\quad}$

16  $9 \times 7 = \underline{\quad}$

17  $6 \times 7 = \underline{\quad}$

18  $10 \times 7 = \underline{\quad}$

19  $8 \times 7 = \underline{\quad}$

## 11. The 7 times table

Write the missing number in each one.

20  $\underline{\quad} \times 7 = 28$

21  $\underline{\quad} \times 7 = 49$

22  $\underline{\quad} \times 7 = 7$

23  $\underline{\quad} \times 7 = 21$

24  $\underline{\quad} \times 7 = 14$

# The 8 and 9 Times Tables

WORKED EXAMPLE

$$8 \times 8 = \underline{64}$$

## 12. The 8 times table

Work out each product.

1  $3 \times 8 = \underline{\quad}$

2  $5 \times 8 = \underline{\quad}$

3  $4 \times 8 = \underline{\quad}$

4  $2 \times 8 = \underline{\quad}$

5  $10 \times 8 = \underline{\quad}$

6  $1 \times 8 = \underline{\quad}$

7  $6 \times 8 = \underline{\quad}$

8  $7 \times 8 = \underline{\quad}$

9  $9 \times 8 = \underline{\quad}$

## 13. The 9 times table

Work out each product.

10  $3 \times 9 = \underline{\quad}$

11  $6 \times 9 = \underline{\quad}$

12  $2 \times 9 = \underline{\quad}$

13  $4 \times 9 = \underline{\quad}$

14  $9 \times 9 = \underline{\quad}$

15  $1 \times 9 = \underline{\quad}$

16  $5 \times 9 = \underline{\quad}$

17  $7 \times 9 = \underline{\quad}$

18  $8 \times 9 = \underline{\quad}$

## 14. Word problems

Read each problem. Write the answer.

- 19 Jordan filled 2 shelves with 2 notebooks in each.

**How many notebooks does Jordan have in all?**

---

- 20 Lucia filled 2 trays with 8 croissants in each.

**How many croissants does Lucia have in all?**

---

# Mixed Times Tables

WORKED EXAMPLE

$$9 \times 3 = \underline{27}$$

## 15. Multiplication

Work out each product.

- |                                     |                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 $1 \times 3 = \underline{\quad}$  | 2 $3 \times 6 = \underline{\quad}$  | 3 $2 \times 1 = \underline{\quad}$  | 4 $8 \times 1 = \underline{\quad}$  |
| 5 $7 \times 10 = \underline{\quad}$ | 6 $6 \times 2 = \underline{\quad}$  | 7 $6 \times 3 = \underline{\quad}$  | 8 $2 \times 2 = \underline{\quad}$  |
| 9 $6 \times 6 = \underline{\quad}$  | 10 $5 \times 3 = \underline{\quad}$ | 11 $5 \times 8 = \underline{\quad}$ | 12 $9 \times 1 = \underline{\quad}$ |
| 13 $5 \times 5 = \underline{\quad}$ | 14 $7 \times 1 = \underline{\quad}$ | 15 $9 \times 6 = \underline{\quad}$ | 16 $1 \times 2 = \underline{\quad}$ |

## 16. Word problems

Read each problem. Write the answer.

- 17 Farah filled 5 feed bags with 2 food pellets in each. Farah has 4 treats as well.  
**How many food pellets does Farah have in all?**

---

- 18 Maya filled 4 boxes with 4 tickets in each.  
**How many tickets does Maya have in all?**

---

# Dividing by 2, 5 and 10

WORKED EXAMPLE

$$18 \div 2 = \underline{9}$$

## 17. Dividing by 2

Work out each quotient.

1  $4 \div 2 = \underline{\quad}$

2  $12 \div 2 = \underline{\quad}$

3  $8 \div 2 = \underline{\quad}$

4  $2 \div 2 = \underline{\quad}$

5  $16 \div 2 = \underline{\quad}$

6  $14 \div 2 = \underline{\quad}$

7  $6 \div 2 = \underline{\quad}$

8  $10 \div 2 = \underline{\quad}$

## 18. Dividing by 5

Work out each quotient.

9  $5 \div 5 = \underline{\quad}$

10  $35 \div 5 = \underline{\quad}$

11  $10 \div 5 = \underline{\quad}$

12  $20 \div 5 = \underline{\quad}$

13  $45 \div 5 = \underline{\quad}$

14  $30 \div 5 = \underline{\quad}$

15  $15 \div 5 = \underline{\quad}$

16  $25 \div 5 = \underline{\quad}$

17  $40 \div 5 = \underline{\quad}$

18  $50 \div 5 = \underline{\quad}$

## 19. Dividing by 10

Work out each quotient.

19  $10 \div 10 = \underline{\quad}$

20  $60 \div 10 = \underline{\quad}$

21  $20 \div 10 = \underline{\quad}$

22  $30 \div 10 = \underline{\quad}$

23  $100 \div 10 = \underline{\quad}$

24  $50 \div 10 = \underline{\quad}$

25  $40 \div 10 = \underline{\quad}$

26  $70 \div 10 = \underline{\quad}$

27  $80 \div 10 = \underline{\quad}$

28  $90 \div 10 = \underline{\quad}$

# Dividing by 3, 4 and 6

WORKED EXAMPLE

$$27 \div 3 = \underline{9}$$

## 20. Dividing by 3

Work out each quotient.

1  $3 \div 3 = \underline{\quad}$

2  $15 \div 3 = \underline{\quad}$

3  $6 \div 3 = \underline{\quad}$

4  $9 \div 3 = \underline{\quad}$

5  $30 \div 3 = \underline{\quad}$

6  $21 \div 3 = \underline{\quad}$

7  $12 \div 3 = \underline{\quad}$

8  $18 \div 3 = \underline{\quad}$

## 21. Dividing by 4

Work out each quotient.

9  $4 \div 4 = \underline{\quad}$

10  $24 \div 4 = \underline{\quad}$

11  $8 \div 4 = \underline{\quad}$

12  $12 \div 4 = \underline{\quad}$

13  $32 \div 4 = \underline{\quad}$

14  $28 \div 4 = \underline{\quad}$

15  $16 \div 4 = \underline{\quad}$

16  $20 \div 4 = \underline{\quad}$

## 22. Dividing by 6

Work out each quotient.

17  $6 \div 6 = \underline{\quad}$

18  $42 \div 6 = \underline{\quad}$

19  $12 \div 6 = \underline{\quad}$

20  $18 \div 6 = \underline{\quad}$

21  $48 \div 6 = \underline{\quad}$

22  $36 \div 6 = \underline{\quad}$

23  $24 \div 6 = \underline{\quad}$

24  $30 \div 6 = \underline{\quad}$

# Dividing by 7, 8 and 9

WORKED EXAMPLE

$$56 \div 7 = \underline{8}$$

## 23. Dividing by 7

Work out each quotient.

1  $28 \div 7 = \underline{\quad}$

2  $42 \div 7 = \underline{\quad}$

3  $21 \div 7 = \underline{\quad}$

4  $70 \div 7 = \underline{\quad}$

5  $14 \div 7 = \underline{\quad}$

6  $35 \div 7 = \underline{\quad}$

## 24. Dividing by 8

Work out each quotient.

7  $32 \div 8 = \underline{\quad}$

8  $40 \div 8 = \underline{\quad}$

9  $8 \div 8 = \underline{\quad}$

10  $72 \div 8 = \underline{\quad}$

11  $24 \div 8 = \underline{\quad}$

12  $48 \div 8 = \underline{\quad}$

## 25. Dividing by 9

Work out each quotient.

13  $36 \div 9 = \underline{\quad}$

14  $63 \div 9 = \underline{\quad}$

15  $18 \div 9 = \underline{\quad}$

16  $81 \div 9 = \underline{\quad}$

17  $9 \div 9 = \underline{\quad}$

18  $54 \div 9 = \underline{\quad}$

## 26. Word problems

Read each problem. Write the answer.

- 19 Courtney packed 16 food pellets into hutches of 8.

**How many hutches did Courtney fill?**

---

- 20 Lucia packed 42 bread rolls into trays of 7.

**How many trays did Lucia fill?**

---

# Word Problems: Multiplication

## WORKED EXAMPLE

Ravi filled 3 hutches with 2 food pellets in each.

**How many food pellets does Ravi have in all?**

**ANSWER:  $3 \times 2 = 6$  food pellets**

## 27. Word problems

Read each problem. Write the answer.

- 1 Jordan filled 2 shelves with 2 notebooks in each.

**How many notebooks does Jordan have in all?**

---

- 2 Ana filled 2 boxes with 9 folders in each. Besides those, Ana has 6 books.

**How many folders does Ana have in all?**

---

- 3 Kwame filled 2 trays with 5 bread rolls in each.

**How many bread rolls does Kwame have in all?**

---

- 4 Milo filled 5 hutches with 8 treats in each.

**How many treats does Milo have in all?**

---

# Word Problems: Division

## WORKED EXAMPLE

Farah shared 18 treats equally among 6 feed bags.

**How many treats went in each feed bag?**

ANSWER:  $18 \div 6 = 3$  treats

## 28. Word problems

Read each problem. Write the answer.

- 1 Lucia shared 15 cookies equally among 5 boxes. Lucia also keeps 6 cupcakes.

**How many cookies went in each box?**

---

- 2 Maya packed 20 books into crates of 4.

**How many crates did Maya fill?**

---

- 3 Ravi shared 24 carrots equally among 6 feed bags.

**How many carrots went in each feed bag?**

---

WORKED EXAMPLE

3, 13, 23, 33, 43**29. Number patterns**

Find the missing number in each pattern.

- |                      |                      |                      |
|----------------------|----------------------|----------------------|
| 1 1, 9, 17, __, 33   | 2 6, 16, __, 36, 46  | 3 3, 13, __, 33, 43  |
| 4 8, __, 20, 26, 32  | 5 3, __, 9, 12, 15   | 6 8, 12, __, 20, 24  |
| 7 6, 11, 16, __, 26  | 8 8, 18, __, 38, 48  | 9 4, 8, __, 16, 20   |
| 10 3, 14, __, 36, 47 | 11 2, 6, 10, __, 18  | 12 3, 7, 11, __, 19  |
| 13 5, __, 19, 26, 33 | 14 3, 15, 27, __, 51 | 15 1, 8, __, 22, 29  |
| 16 9, __, 31, 42, 53 | 17 9, 12, 15, __, 21 | 18 4, 13, __, 31, 40 |
| 19 5, 13, __, 29, 37 | 20 8, 10, 12, __, 16 | 21 7, 15, 23, __, 39 |
| 22 8, 17, __, 35, 44 | 23 1, 4, 7, __, 13   | 24 3, 7, __, 15, 19  |
| 25 1, 3, 5, __, 9    | 26 2, __, 12, 17, 22 | 27 9, __, 21, 27, 33 |
| 28 6, 17, 28, __, 50 | 29 1, __, 11, 16, 21 | 30 6, __, 14, 18, 22 |
| 31 7, 10, __, 16, 19 | 32 4, __, 24, 34, 44 | 33 2, __, 14, 20, 26 |
| 34 9, 14, __, 24, 29 | 35 9, 20, 31, __, 53 | 36 2, __, 10, 14, 18 |
| 37 9, __, 25, 33, 41 | 38 4, 15, __, 37, 48 | 39 7, 11, __, 19, 23 |
| 40 3, __, 17, 24, 31 | 41 4, __, 14, 19, 24 | 42 5, 7, __, 11, 13  |
| 43 4, __, 22, 31, 40 | 44 7, __, 11, 13, 15 | 45 9, 21, 33, __, 57 |
| 46 2, 12, __, 32, 42 | 47 3, 6, __, 12, 15  | 48 7, 16, __, 34, 43 |
| 49 5, 9, 13, __, 21  | 50 6, __, 30, 42, 54 |                      |

## WORKED EXAMPLE

Which number is the odd one out?

27

37

21

58

Why? **ANSWER:** the other three are all odd.

### 30. Reasoning puzzles

Read each question and write what you work out.

- 1 An even number plus an odd number is odd.

always

sometimes

never

Why? .....

- 2  $\blacksquare + \blacksquare + \blacksquare = 24$  and  $\blacksquare + \bullet = 12$ . What is  $\bullet$ ?

Why? .....

- 3 Which number is the odd one out?

16

42

3

40

Why? .....

- 4  $\blacksquare + \blacksquare = 18$  and  $\blacktriangle - \blacksquare = 3$ . What is  $\blacktriangle$ ?

Why? .....

- 5 Which number is the odd one out?

20

10

56

50

Why? .....

- 6 The sum of two even numbers is even.

always

sometimes

never

Why? .....

# Telling the Time

WORKED EXAMPLE

$$10:10 \rightarrow 10:50 = \underline{40} \text{ min}$$

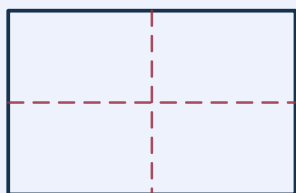
## 31. Elapsed time

Write how many minutes pass between the two times.

- |                                |                               |
|--------------------------------|-------------------------------|
| 1 3:30 → 3:45 = ____<br>min    | 2 12:10 → 1:05 = ____<br>min  |
| 3 8:40 → 9:55 = ____<br>min    | 4 12:30 → 12:50 = ____<br>min |
| 5 1:50 → 2:45 = ____<br>min    | 6 2:45 → 3:55 = ____<br>min   |
| 7 10:10 → 10:35 = ____<br>min  | 8 2:10 → 3:10 = ____<br>min   |
| 9 7:20 → 8:40 = ____<br>min    | 10 4:15 → 4:35 = ____<br>min  |
| 11 8:00 → 9:05 = ____<br>min   | 12 5:30 → 6:35 = ____<br>min  |
| 13 12:05 → 12:50 = ____<br>min | 14 6:50 → 8:10 = ____<br>min  |
| 15 1:55 → 2:55 = ____<br>min   | 16 1:35 → 2:50 = ____<br>min  |
| 17 9:55 → 10:10 = ____<br>min  | 18 2:30 → 3:20 = ____<br>min  |
| 19 10:15 → 11:25 = ____<br>min | 20 7:30 → 8:45 = ____<br>min  |
| 21 1:20 → 2:15 = ____<br>min   | 22 8:05 → 8:40 = ____<br>min  |
| 23 12:25 → 1:35 = ____<br>min  | 24 2:25 → 3:25 = ____<br>min  |
| 25 11:10 → 12:30 = ____<br>min | 26 2:55 → 3:05 = ____<br>min  |

# Naming Shapes

WORKED EXAMPLE



hexagon

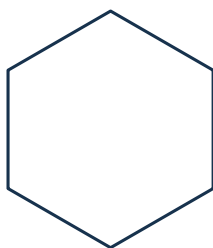
**rectangle**

triangle

## 32. Name the shape

Circle the name of each shape.

1

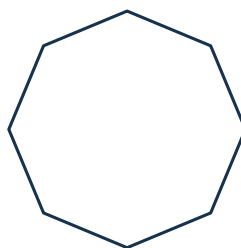


hexagon

rectangle

square

2

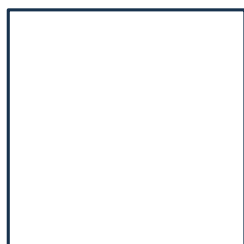


octagon

pentagon

triangle

3

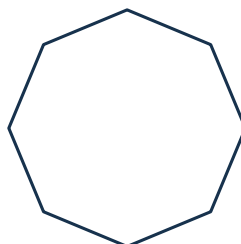


hexagon

rectangle

square

4

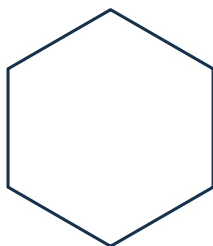


octagon

pentagon

square

5

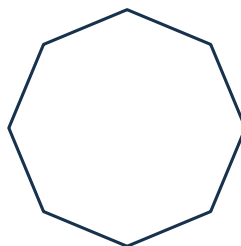


hexagon

octagon

rectangle

6



octagon

rectangle

triangle

# Area by Counting Squares

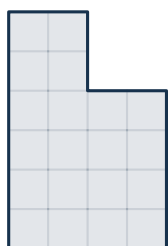
WORKED EXAMPLE

**22** squares

## 33. Area by counting squares

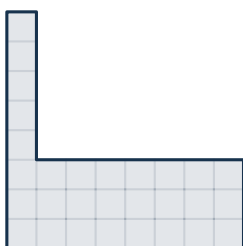
Count the squares to find the area of each figure.

1



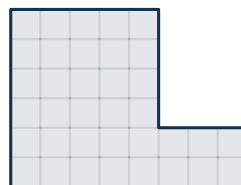
\_\_\_\_\_ squares

2



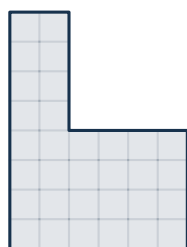
\_\_\_\_\_ squares

3



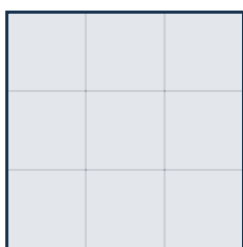
\_\_\_\_\_ squares

4



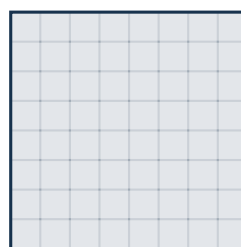
\_\_\_\_\_ squares

5



\_\_\_\_\_ squares

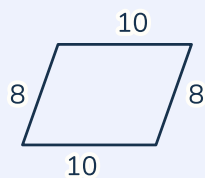
6



\_\_\_\_\_ squares

# Perimeter

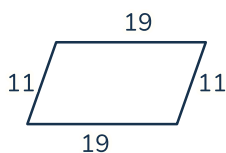
WORKED EXAMPLE

**36** cm

## 34. Perimeter

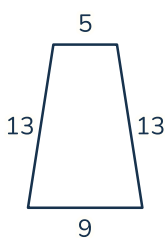
Add every side. All lengths are in centimeters.

1



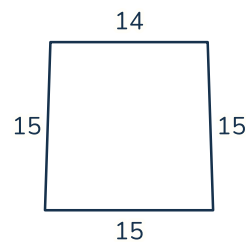
\_\_\_\_\_ cm

2



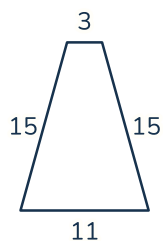
\_\_\_\_\_ cm

3



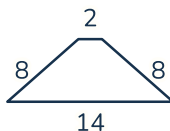
\_\_\_\_\_ cm

4



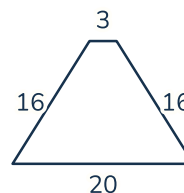
\_\_\_\_\_ cm

5



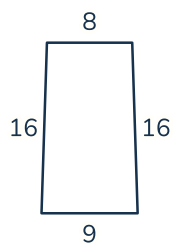
\_\_\_\_\_ cm

6



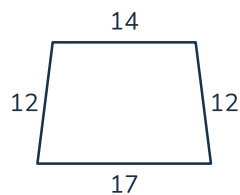
\_\_\_\_\_ cm

7



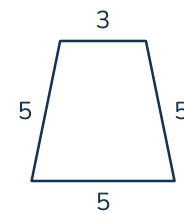
\_\_\_\_\_ cm

8



\_\_\_\_\_ cm

9

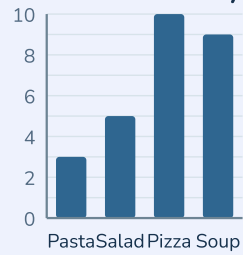


\_\_\_\_\_ cm

# Bar Graphs and Line Plots

## WORKED EXAMPLE

Lunches chosen today



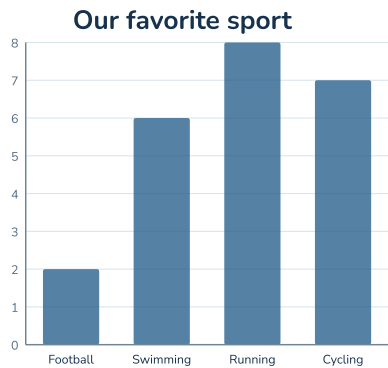
How many more chose salad and pizza than chose pasta?

ANSWER: **12**

35. Bar graphs

Read each bar graph and answer the question.

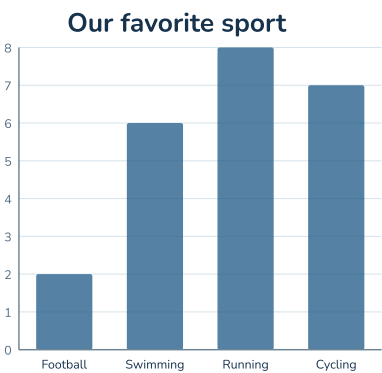
1



How many more chose swimming and running than chose football?

---

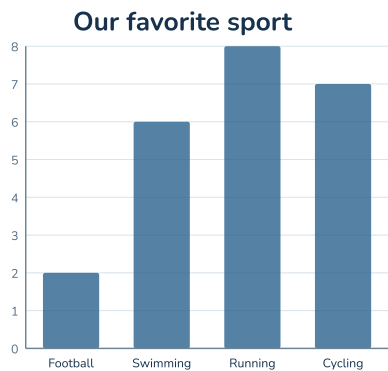
2



How many more chose football and swimming than chose cycling?

---

3



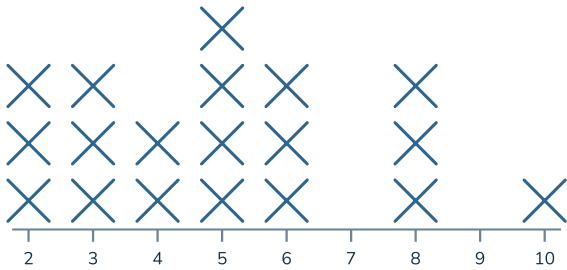
How many more chose football and running than chose swimming?

---

36. Line plots

Read each line plot and answer the question.

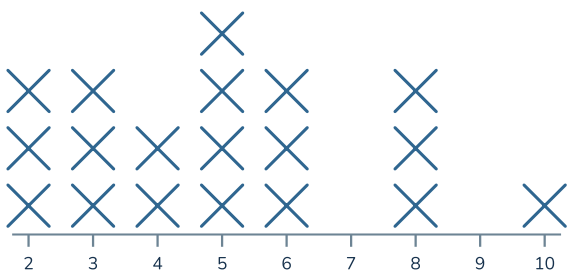
4                      Length of worms we found (inches)



How many worms were longer than 3 inches?

\_\_\_\_\_

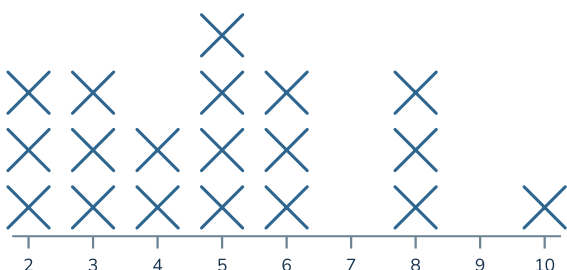
5                      Length of worms we found (inches)



How many worms were longer than 4 inches?

\_\_\_\_\_

6                      Length of worms we found (inches)



How many worms were longer than 5 inches?

\_\_\_\_\_

# Review: Times Tables and Division

WORKED EXAMPLE

$$10 \times 7 = \underline{70}$$

## 37. Multiplication

Work out each product.

1  $3 \times 10 = \underline{\quad}$

2  $2 \times 5 = \underline{\quad}$

3  $10 \times 6 = \underline{\quad}$

4  $4 \times 6 = \underline{\quad}$

5  $10 \times 5 = \underline{\quad}$

6  $4 \times 9 = \underline{\quad}$

7  $9 \times 9 = \underline{\quad}$

## 38. Division

Work out each quotient.

8  $24 \div 6 = \underline{\quad}$

9  $12 \div 4 = \underline{\quad}$

10  $42 \div 6 = \underline{\quad}$

11  $35 \div 5 = \underline{\quad}$

12  $54 \div 9 = \underline{\quad}$

13  $21 \div 3 = \underline{\quad}$

14  $42 \div 7 = \underline{\quad}$

## 39. Word problems

Read each problem. Write the answer.

- 15 Jordan shared 36 notebooks equally among 4 boxes.

**How many notebooks went in each box?**

---

- 16 Jordan filled 4 shelves with 6 books in each. Jordan also has 2 tickets.

**How many books does Jordan have in all?**

---

# Answer Key (1 of 5)

## Equal Groups: the 2 Times Table

The 2 times table

1.  $2 \times 2 = 4$
2.  $4 \times 2 = 8$
3.  $6 \times 2 = 12$
4.  $3 \times 2 = 6$
5.  $1 \times 2 = 2$
6.  $5 \times 2 = 10$
7.  $9 \times 2 = 18$
8.  $7 \times 2 = 14$
9.  $8 \times 2 = 16$

Word problems

10.  $2 \times 7 = 14$  treats

## The 5 and 10 Times Tables

The 5 times table

1.  $3 \times 5 = 15$
2.  $2 \times 5 = 10$
3.  $5 \times 5 = 25$
4.  $4 \times 5 = 20$

The 10 times table

5.  $4 \times 10 = 40$
6.  $2 \times 10 = 20$
7.  $5 \times 10 = 50$
8.  $3 \times 10 = 30$
9.  $1 \times 10 = 10$
10.  $6 \times 10 = 60$

Word problems

11.  $6 \times 2 = 12$  food pellets

## The 3 and 4 Times Tables

The 3 times table

1.  $1 \times 3 = 3$
2.  $4 \times 3 = 12$
3.  $5 \times 3 = 15$
4.  $3 \times 3 = 9$
5.  $2 \times 3 = 6$

The 4 times table

6.  $3 \times 4 = 12$
7.  $1 \times 4 = 4$
8.  $5 \times 4 = 20$
9.  $4 \times 4 = 16$
10.  $2 \times 4 = 8$

## The 3 and 4 Times Tables (continued)

Word problems

11.  $5 \times 2 = 10$  books

## The 6 and 7 Times Tables

The 6 times table

1.  $2 \times 6 = 12$
2.  $5 \times 6 = 30$
3.  $3 \times 6 = 18$
4.  $4 \times 6 = 24$
5.  $1 \times 6 = 6$
6.  $7 \times 6 = 42$
7.  $9 \times 6 = 54$
8.  $6 \times 6 = 36$
9.  $10 \times 6 = 60$

The 7 times table

10.  $3 \times 7 = 21$
11.  $7 \times 7 = 49$
12.  $2 \times 7 = 14$
13.  $1 \times 7 = 7$
14.  $4 \times 7 = 28$
15.  $5 \times 7 = 35$
16.  $9 \times 7 = 63$
17.  $6 \times 7 = 42$
18.  $10 \times 7 = 70$
19.  $8 \times 7 = 56$

The 7 times table

20.  $4 \times 7 = 28$
21.  $7 \times 7 = 49$
22.  $1 \times 7 = 7$
23.  $3 \times 7 = 21$
24.  $2 \times 7 = 14$

## The 8 and 9 Times Tables

The 8 times table

1.  $3 \times 8 = 24$
2.  $5 \times 8 = 40$
3.  $4 \times 8 = 32$
4.  $2 \times 8 = 16$
5.  $10 \times 8 = 80$
6.  $1 \times 8 = 8$
7.  $6 \times 8 = 48$
8.  $7 \times 8 = 56$
9.  $9 \times 8 = 72$

# Answer Key (2 of 5)

## The 8 and 9 Times Tables (continued)

The 9 times table

10.  $3 \times 9 = 27$
11.  $6 \times 9 = 54$
12.  $2 \times 9 = 18$
13.  $4 \times 9 = 36$
14.  $9 \times 9 = 81$
15.  $1 \times 9 = 9$
16.  $5 \times 9 = 45$
17.  $7 \times 9 = 63$
18.  $8 \times 9 = 72$

Word problems

19.  $2 \times 2 = 4$  notebooks
20.  $2 \times 8 = 16$  croissants

## Mixed Times Tables

Multiplication

1.  $1 \times 3 = 3$
2.  $3 \times 6 = 18$
3.  $2 \times 1 = 2$
4.  $8 \times 1 = 8$
5.  $7 \times 10 = 70$
6.  $6 \times 2 = 12$
7.  $6 \times 3 = 18$
8.  $2 \times 2 = 4$
9.  $6 \times 6 = 36$
10.  $5 \times 3 = 15$
11.  $5 \times 8 = 40$
12.  $9 \times 1 = 9$
13.  $5 \times 5 = 25$
14.  $7 \times 1 = 7$
15.  $9 \times 6 = 54$
16.  $1 \times 2 = 2$

Word problems

17.  $5 \times 2 = 10$  food pellets
18.  $4 \times 4 = 16$  tickets

## Dividing by 2, 5 and 10

Dividing by 2

1.  $4 \div 2 = 2$
2.  $12 \div 2 = 6$
3.  $8 \div 2 = 4$
4.  $2 \div 2 = 1$
5.  $16 \div 2 = 8$
6.  $14 \div 2 = 7$

## Dividing by 2, 5 and 10 (continued)

Dividing by 2 (continued)

7.  $6 \div 2 = 3$
8.  $10 \div 2 = 5$

Dividing by 5

9.  $5 \div 5 = 1$
10.  $35 \div 5 = 7$
11.  $10 \div 5 = 2$
12.  $20 \div 5 = 4$
13.  $45 \div 5 = 9$
14.  $30 \div 5 = 6$
15.  $15 \div 5 = 3$
16.  $25 \div 5 = 5$
17.  $40 \div 5 = 8$
18.  $50 \div 5 = 10$

Dividing by 10

19.  $10 \div 10 = 1$
20.  $60 \div 10 = 6$
21.  $20 \div 10 = 2$
22.  $30 \div 10 = 3$
23.  $100 \div 10 = 10$
24.  $50 \div 10 = 5$
25.  $40 \div 10 = 4$
26.  $70 \div 10 = 7$
27.  $80 \div 10 = 8$
28.  $90 \div 10 = 9$

## Dividing by 3, 4 and 6

Dividing by 3

1.  $3 \div 3 = 1$
2.  $15 \div 3 = 5$
3.  $6 \div 3 = 2$
4.  $9 \div 3 = 3$
5.  $30 \div 3 = 10$
6.  $21 \div 3 = 7$
7.  $12 \div 3 = 4$
8.  $18 \div 3 = 6$

Dividing by 4

9.  $4 \div 4 = 1$
10.  $24 \div 4 = 6$
11.  $8 \div 4 = 2$
12.  $12 \div 4 = 3$
13.  $32 \div 4 = 8$
14.  $28 \div 4 = 7$

# Answer Key (3 of 5)

## Dividing by 3, 4 and 6 (continued)

Dividing by 4 (continued)

15.  $16 \div 4 = 4$

16.  $20 \div 4 = 5$

Dividing by 6

17.  $6 \div 6 = 1$

18.  $42 \div 6 = 7$

19.  $12 \div 6 = 2$

20.  $18 \div 6 = 3$

21.  $48 \div 6 = 8$

22.  $36 \div 6 = 6$

23.  $24 \div 6 = 4$

24.  $30 \div 6 = 5$

## Dividing by 7, 8 and 9

Dividing by 7

1.  $28 \div 7 = 4$

2.  $42 \div 7 = 6$

3.  $21 \div 7 = 3$

4.  $70 \div 7 = 10$

5.  $14 \div 7 = 2$

6.  $35 \div 7 = 5$

Dividing by 8

7.  $32 \div 8 = 4$

8.  $40 \div 8 = 5$

9.  $8 \div 8 = 1$

10.  $72 \div 8 = 9$

11.  $24 \div 8 = 3$

12.  $48 \div 8 = 6$

Dividing by 9

13.  $36 \div 9 = 4$

14.  $63 \div 9 = 7$

15.  $18 \div 9 = 2$

16.  $81 \div 9 = 9$

17.  $9 \div 9 = 1$

18.  $54 \div 9 = 6$

Word problems

19.  $16 \div 8 = 2$  hutches

20.  $42 \div 7 = 6$  trays

## Word Problems: Multiplication

Word problems

1.  $2 \times 2 = 4$  notebooks

2.  $2 \times 9 = 18$  folders

## Word Problems: Multiplication (continued)

Word problems (continued)

3.  $2 \times 5 = 10$  bread rolls

4.  $5 \times 8 = 40$  treats

## Word Problems: Division

Word problems

1.  $15 \div 5 = 3$  cookies

2.  $20 \div 4 = 5$  crates

3.  $24 \div 6 = 4$  carrots

## Number Patterns

Number patterns

1. 1, 9, 17, [25], 33

2. 6, 16, [26], 36, 46

3. 3, 13, [23], 33, 43

4. 8, [14], 20, 26, 32

5. 3, [6], 9, 12, 15

6. 8, 12, [16], 20, 24

7. 6, 11, 16, [21], 26

8. 8, 18, [28], 38, 48

9. 4, 8, [12], 16, 20

10. 3, 14, [25], 36, 47

11. 2, 6, 10, [14], 18

12. 3, 7, 11, [15], 19

13. 5, [12], 19, 26, 33

14. 3, 15, 27, [39], 51

15. 1, 8, [15], 22, 29

16. 9, [20], 31, 42, 53

17. 9, 12, 15, [18], 21

18. 4, 13, [22], 31, 40

19. 5, 13, [21], 29, 37

20. 8, 10, 12, [14], 16

21. 7, 15, 23, [31], 39

22. 8, 17, [26], 35, 44

23. 1, 4, 7, [10], 13

24. 3, 7, [11], 15, 19

25. 1, 3, 5, [7], 9

26. 2, [7], 12, 17, 22

27. 9, [15], 21, 27, 33

28. 6, 17, 28, [39], 50

29. 1, [6], 11, 16, 21

30. 6, [10], 14, 18, 22

31. 7, 10, [13], 16, 19

32. 4, [14], 24, 34, 44

# Answer Key (4 of 5)

## Number Patterns (continued)

Number patterns (continued)

33. 2, [8], 14, 20, 26
34. 9, 14, [19], 24, 29
35. 9, 20, 31, [42], 53
36. 2, [6], 10, 14, 18
37. 9, [17], 25, 33, 41
38. 4, 15, [26], 37, 48
39. 7, 11, [15], 19, 23
40. 3, [10], 17, 24, 31
41. 4, [9], 14, 19, 24
42. 5, 7, [9], 11, 13
43. 4, [13], 22, 31, 40
44. 7, [9], 11, 13, 15
45. 9, 21, 33, [45], 57
46. 2, 12, [22], 32, 42
47. 3, 6, [9], 12, 15
48. 7, 16, [25], 34, 43
49. 5, 9, 13, [17], 21
50. 6, [18], 30, 42, 54

## True, False or Fix It

Reasoning puzzles

1. An even number plus an odd number is odd. → always
2. ■ = 8, ● = 4
3. 16, 42, 3, 40 → 3 (the other three are all two-digit numbers)
4. ■ = 9, ▲ = 12
5. 20, 10, 56, 50 → 56 (the other three are all multiples of 10)
6. The sum of two even numbers is even. → always

## Telling the Time

Elapsed time

1. 3:30 → 3:45 = 15 min
2. 12:10 → 1:05 = 55 min
3. 8:40 → 9:55 = 75 min
4. 12:30 → 12:50 = 20 min
5. 1:50 → 2:45 = 55 min
6. 2:45 → 3:55 = 70 min
7. 10:10 → 10:35 = 25 min
8. 2:10 → 3:10 = 60 min
9. 7:20 → 8:40 = 80 min
10. 4:15 → 4:35 = 20 min
11. 8:00 → 9:05 = 65 min

## Telling the Time (continued)

Elapsed time (continued)

12. 5:30 → 6:35 = 65 min
13. 12:05 → 12:50 = 45 min
14. 6:50 → 8:10 = 80 min
15. 1:55 → 2:55 = 60 min
16. 1:35 → 2:50 = 75 min
17. 9:55 → 10:10 = 15 min
18. 2:30 → 3:20 = 50 min
19. 10:15 → 11:25 = 70 min
20. 7:30 → 8:45 = 75 min
21. 1:20 → 2:15 = 55 min
22. 8:05 → 8:40 = 35 min
23. 12:25 → 1:35 = 70 min
24. 2:25 → 3:25 = 60 min
25. 11:10 → 12:30 = 80 min
26. 2:55 → 3:05 = 10 min

## Naming Shapes

Name the shape

1. hexagon — from hexagon, rectangle, square
2. octagon — from octagon, pentagon, triangle
3. square — from hexagon, rectangle, square
4. octagon — from octagon, pentagon, square
5. hexagon — from hexagon, octagon, rectangle
6. octagon — from octagon, rectangle, triangle

## Area by Counting Squares

Area by counting squares

1. 4×6 less 2×2: 20 squares
2. 8×8 less 7×5: 29 squares
3. 8×6 less 3×4: 36 squares
4. 6×8 less 4×4: 32 squares
5. 3×3: 9 squares
6. 8×8: 64 squares

## Perimeter

Perimeter

1. parallelogram 19 + 11 + 19 + 11: 60 cm
2. trapezoid 5 + 13 + 9 + 13: 40 cm
3. trapezoid 14 + 15 + 15 + 15: 59 cm
4. trapezoid 3 + 15 + 11 + 15: 44 cm
5. trapezoid 2 + 8 + 14 + 8: 32 cm
6. trapezoid 3 + 16 + 20 + 16: 55 cm
7. trapezoid 8 + 16 + 9 + 16: 49 cm

# Answer Key (5 of 5)

## Perimeter (continued)

Perimeter (continued)

8. trapezoid  $14 + 12 + 17 + 12$ : 55 cm
9. trapezoid  $3 + 5 + 5 + 5$ : 18 cm

## Bar Graphs and Line Plots

Bar graphs

1.  $6 + 8 = 14$ ,  $14 - 2 = 12$
2.  $2 + 6 = 8$ ,  $8 - 7 = 1$
3.  $2 + 8 = 10$ ,  $10 - 6 = 4$

Line plots

4. longer than 3 inches — 13 worms
5. longer than 4 inches — 11 worms
6. longer than 5 inches — 7 worms

## Review: Times Tables and Division

Multiplication

1.  $3 \times 10 = 30$
2.  $2 \times 5 = 10$
3.  $10 \times 6 = 60$
4.  $4 \times 6 = 24$
5.  $10 \times 5 = 50$
6.  $4 \times 9 = 36$
7.  $9 \times 9 = 81$

Division

8.  $24 \div 6 = 4$
9.  $12 \div 4 = 3$
10.  $42 \div 6 = 7$
11.  $35 \div 5 = 7$
12.  $54 \div 9 = 6$
13.  $21 \div 3 = 7$
14.  $42 \div 7 = 6$

Word problems

15.  $36 \div 4 = 9$  notebooks
16.  $4 \times 6 = 24$  books

# Solutions (1 of 9)

## Equal Groups: the 2 Times Table

Word problems

10. Ravi filled 2 feed bags with 7 treats in each.

How many treats does Ravi have in all? \_\_\_\_

asked:

How many treats does Ravi have in all?

$$2 \times 7 = 14$$

14 treats

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: 2 and 7. 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.

Equal groups, and you are told how many groups and how big each one is — that is a multiplication, and adding the two numbers is the mistake the story is set up to catch. So this one is a multiplication:  $2 \times 7$ .

$2 \times 7 = 14$  treats. And answer the question that was ASKED — "How many treats does Ravi have in all?" — in treats, because the sum on its own is not yet an answer.

## Number Patterns

Number patterns

1. 1, 9, 17, \_\_\_\_, 33

1   9   17   25   33

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

1 to 9 is + 8. One pair is a guess, though — check it against another.

$9 + 8 = 17$ , so the rule holds. Two pairs agreeing is what turns a guess into the rule.

Now apply it to the gap:  $17 + 8 = 25$ .

Check it against the number already after the gap:  $25 + 8 = 33$ , which is what is there. The missing number is 25.

## Solutions (2 of 9)

### Number Patterns (continued)

Number patterns (continued)

2. 6, 16, \_\_\_\_, 36, 46

6   16   26   36   46

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

6 to 16 is  $+ 10$ . One pair is a guess, though — check it against another.

$36 + 10 = 46$ , so the rule holds. Two pairs agreeing is what turns a guess into the rule.

Now apply it to the gap:  $16 + 10 = 26$ .

Check it against the number already after the gap:  $26 + 10 = 36$ , which is what is there. The missing number is 26.

### True, False or Fix It

Reasoning puzzles

1. An even number plus an odd number is odd.

always

sometimes

never

Why?

always

sometimes

never

always

Before trying anything, notice what each answer would COST. One example that works proves nothing at all. One that fails rules out "always" on its own. They are not the same size of evidence.

So hunt for a counter-example — a case where the claim breaks. That is the cheapest question to ask, and its answer decides between all three.

There is no counter-example — it holds every time. So the answer is always.

## Solutions (3 of 9)

### True, False or Fix It (continued)

Reasoning puzzles (continued)

2. ■ + ■ + ■ = 24 and ■ + ● = 12. What is ●? \_\_\_\_

Why? \_\_\_\_\_

$$\begin{array}{rclcl} 24 & \div & 3 & = & 8 \\ 12 & - & 8 & = & 4 \end{array}$$

Two unknown symbols and two facts. Do not start where the question points — start where there is only ONE thing you do not know, because that is the only place an answer can come from.

The first fact is the same symbol 3 times and nothing else, so it is that symbol multiplied by 3:  $24 \div 3 = 8$ .

Now the next fact has only one unknown left in it — it is 12 take away the 8:  $12 - 8 = 4$ .

### Telling the Time

Elapsed time

1. 3:30 → 3:45 = \_\_\_\_ min



From 3:30 to 3:45. Count FORWARDS rather than taking one from the other — then nothing has to be borrowed and the hour never bites.

It all sits inside the one hour, so there is nothing to cross: 15 minutes straight through to 3:45.

Add the hops up: 15 — that is 15 minutes.

2. 12:10 → 1:05 = \_\_\_\_ min



From 12:10 to 1:05. Count FORWARDS rather than taking one from the other — then nothing has to be borrowed and the hour never bites.

First hop: up to the next o'clock. 12:10 to 1:00 is 50 minutes.

Then the last 5 minutes to reach 1:05.

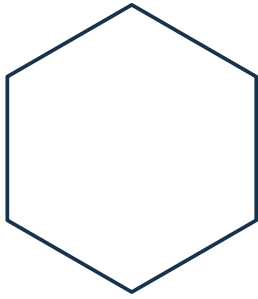
Add the hops up:  $50 + 5$  — that is 55 minutes.

## Solutions (4 of 9)

### Naming Shapes

Name the shape

1.



hexagon

rectangle

square

sides: 6

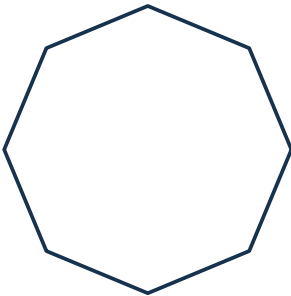
**hexagon**

Count the sides first — that is what almost every shape name is built from, and it is one number rather than a picture to recognize.

6 sides makes it a hexagon.

So it is a hexagon.

2.



octagon

pentagon

triangle

sides: 8

**octagon**

Count the sides first — that is what almost every shape name is built from, and it is one number rather than a picture to recognize.

8 sides makes it an octagon.

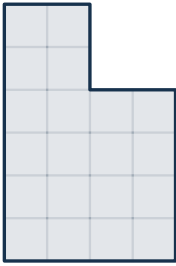
So it is an octagon.

## Solutions (5 of 9)

### Area by Counting Squares

Area by counting squares

1.



— squares

$$\text{first way: } 24 - 4 = 20$$

$$\text{strip: } 4 \times 4 = 16$$

$$\text{upright: } 2 \times 2 = 4$$

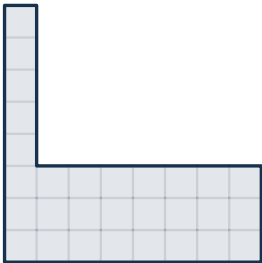
$$16 + 4 = \mathbf{20 \text{ squares}}$$

There is no single row that runs all the way across this one, so counting rows does not work as it stands. Cut it into pieces that ARE rectangles — and there is more than one way.

First way: count the whole rectangle it would be —  $4 \times 6 = 24$  — then take off the bite,  $2 \times 2 = 4$ . That leaves 20.

Second way: two rectangles. The strip underneath is  $4 \times 4 = 16$ , the part standing on it is  $2 \times 2 = 4$ , and  $16 + 4 = 20$ . Two ways agreeing is how you know a count is right.

2.



— squares

$$\text{first way: } 64 - 35 = 29$$

$$\text{strip: } 8 \times 3 = 24$$

$$\text{upright: } 1 \times 5 = 5$$

$$24 + 5 = \mathbf{29 \text{ squares}}$$

There is no single row that runs all the way across this one, so counting rows does not work as it stands. Cut it into pieces that ARE rectangles — and there is more than one way.

First way: count the whole rectangle it would be —  $8 \times 8 = 64$  — then take off the bite,  $7 \times 5 = 35$ . That leaves 29.

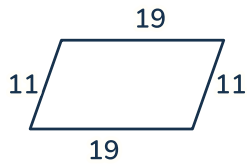
Second way: two rectangles. The strip underneath is  $8 \times 3 = 24$ , the part standing on it is  $1 \times 5 = 5$ , and  $24 + 5 = 29$ . Two ways agreeing is how you know a count is right.

## Solutions (6 of 9)

### Perimeter

Perimeter

1.



— cm

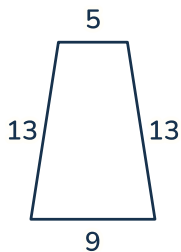
$$\begin{array}{l} \text{sides: } 19 \quad 11 \quad 19 \quad 11 \\ 19 + 11 + 19 + 11 = \\ \mathbf{60 \text{ cm}} \end{array}$$

Perimeter is the distance round the OUTSIDE — the length of the fence, not the size of the field. That is the whole difference between this and area, and it is where the usual wrong answer comes from.

So there is nothing to work out — just walk round the edge and add:  $19 + 11 + 19 + 11$ .

$19 + 11 + 19 + 11 = 60 \text{ cm}$ . Note the unit: cm, not square cm — a fence is a length, and a length never gets squared.

2.



— cm

$$\begin{array}{l} \text{sides: } 5 \quad 13 \quad 9 \quad 13 \\ 5 + 13 + 9 + 13 = \\ \mathbf{40 \text{ cm}} \end{array}$$

Perimeter is the distance round the OUTSIDE — the length of the fence, not the size of the field. That is the whole difference between this and area, and it is where the usual wrong answer comes from.

So there is nothing to work out — just walk round the edge and add:  $5 + 13 + 9 + 13$ .

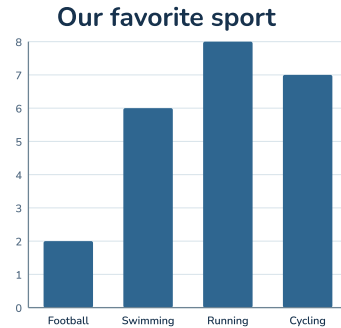
$5 + 13 + 9 + 13 = 40 \text{ cm}$ . Note the unit: cm, not square cm — a fence is a length, and a length never gets squared.

# Solutions (7 of 9)

## Bar Graphs and Line Plots

Bar graphs

1.



**How many more chose swimming and running than chose football?**

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

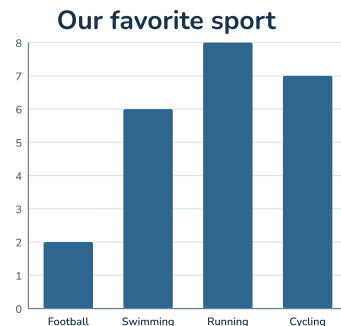
**12 votes**

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:  $6 + 8 = 14$ ,  $14 - 2 = 12$ . So the answer is 12 votes.

2.



**How many more chose football and swimming than chose cycling?**

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

**1 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:  $2 + 6 = 8$ ,  $8 - 7 = 1$ . So the answer is 1 votes.

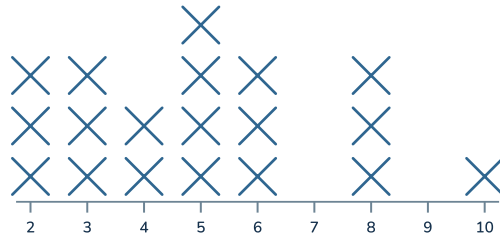
## Solutions (8 of 9)

### Bar Graphs and Line Plots (continued)

Line plots

4.

Length of worms we found (inches)



How many worms were longer than 3 inches?

2 inches: 3 worms  
3 inches: 3 worms  
4 inches: 2 worms  
5 inches: 4 worms  
6 inches: 3 worms  
8 inches: 3 worms  
10 inches: 1 worms

13

A line plot is not bars to read off a scale — each mark is one worm. 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: 3 at 2, 3 at 3, 2 at 4, 4 at 5, 3 at 6, 3 at 8, 1 at 10.

longer than 3 inches — 13 worms — so the answer is 13.

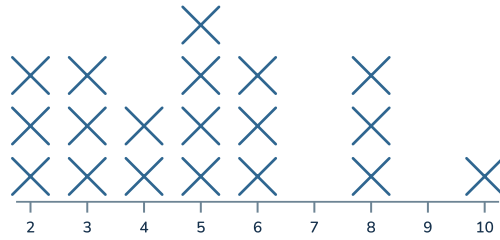
## Solutions (9 of 9)

### Bar Graphs and Line Plots (continued)

Line plots (continued)

5.

Length of worms we found (inches)



How many worms were longer than 4 inches?

2 inches: 3 worms  
3 inches: 3 worms  
4 inches: 2 worms  
5 inches: 4 worms  
6 inches: 3 worms  
8 inches: 3 worms  
10 inches: 1 worms

11

A line plot is not bars to read off a scale — each mark is one worm. 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: 3 at 2, 3 at 3, 2 at 4, 4 at 5, 3 at 6, 3 at 8, 1 at 10.

longer than 4 inches — 11 worms — so the answer is 11.