

Systems of equations — By elimination

Name: _____

Date: _____

Solve each pair by adding the two equations.

1 $-2x + 12y = -30$
 $x - 12y = 15$
 $-x = -15$
 $x = 15$
 $y = 0$

2 $5x + 2y = -12$
 $8x - 2y = 38$

3 $8x + 8y = -56$
 $-5x - 8y = 20$

4 $6x + 9y = 36$
 $4x - 9y = -36$

5 $-5x + 8y = -60$
 $6x - 8y = 56$

6 $x + 2y = 6$
 $11x - 2y = 18$

7 $6x + 6y = 42$
 $2x - 6y = -34$

8 $-3x + 2y = 4$
 $7x - 2y = 12$



Systems of equations — By substitution

Name: _____

Date: _____

Solve each pair by substitution.

1 $y = -x + 8$
 $5x - 2y = -37$
 $5x - 2(-x + 8) = -37$
 $x = -3$
 $y = 11$
 $x = -3$ and $y = 11$

2 $y = 2x + 13$
 $-6x + 7y = -5$

3 $y = 3x - 18$
 $-x + 9y = -6$

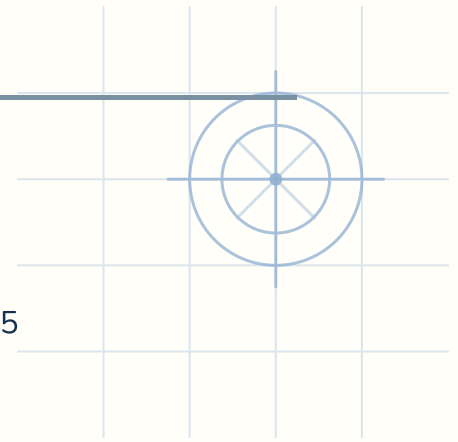
4 $y = x - 7$
 $2x + 2y = 34$

5 $y = 3x - 18$
 $-12x + 7y = -36$

6 $y = 3x + 1$
 $10x - 2y = -2$

7 $y = 4x + 8$
 $-12x + 3y = 24$

8 $y = x + 15$
 $6x + 2y = 30$

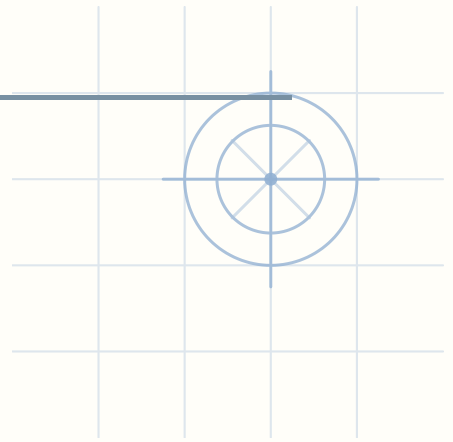


Absolute value equations — Solve $|x + b| = c$

Name: _____

Date: _____

Solve each equation. Each has two answers.



1 $|x - 4| = 6$

$$\begin{aligned}x - 4 &= 6 \text{ or } x - 4 = -6 \\x - 4 &= 6 \rightarrow x = 10 \\x - 4 &= -6 \rightarrow x = -2 \\x &= -2 \text{ or } x = 10\end{aligned}$$

2 $|x - 6| = 4$

3 $|x + 4| = 4$

4 $|x - 6| = 8$

5 $|x - 1| = 6$

6 $|x + 3| = 4$

7 $|x| = 7$

8 $|x + 1| = 4$



Absolute value equations — Solve $|ax + b| = c$

Name: _____

Date: _____

Solve each equation. Each has two answers.

1 $|3x - 6| = 6$

$$3x - 6 = 6 \text{ or } 3x - 6 = -6$$

$$3x - 6 = 6 \rightarrow x = 4$$

$$3x - 6 = -6 \rightarrow x = 0$$

$$x = 0 \text{ or } x = 4$$

2 $|3x - 3| = 21$

3 $|2x - 8| = 2$

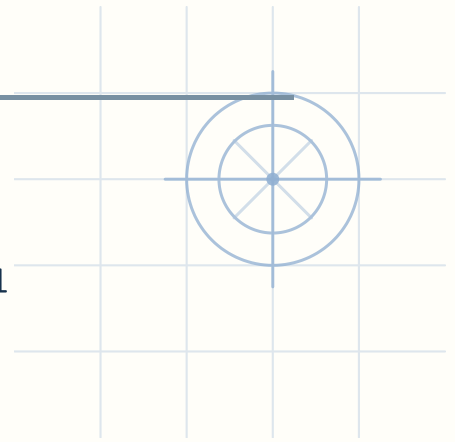
4 $|3x - 6| = 9$

5 $|2x - 4| = 4$

6 $|2x + 2| = 2$

7 $|3x - 9| = 12$

8 $|2x + 4| = 6$



Scientific notation — Multiplying

Name: _____

Date: _____

Multiply. Write each answer in scientific notation.

1 $(5 \times 10^{-1}) \times (8 \times 10^{-3})$

$$\begin{aligned} 5 \times 8 &= 40 \\ -1 + -3 &= -4 \\ 40 \times 10^{-4} \\ 40 &\geq 10 \\ \rightarrow 4 \times 10^{-3} \end{aligned}$$

2 $(6 \times 10^6) \times (8 \times 10^{-5})$

3 $(4 \times 10^6) \times (2 \times 10^5)$

4 $(3 \times 10^7) \times (6 \times 10^2)$

5 $(3 \times 10^{-4}) \times (1.5 \times 10^8)$

6 $(5 \times 10^4) \times (8 \times 10^{-4})$

7 $(3 \times 10^{-2}) \times (1.5 \times 10^7)$

8 $(2 \times 10^{-1}) \times (2 \times 10^3)$



Scientific notation — Dividing

Name: _____

Date: _____

Divide. Write each answer in scientific notation.

1 $(7.5 \times 10^7) \div (3 \times 10^{-2})$

$$7.5 \div 3 = 2.5$$

$$7 - -2 = 9$$

$$2.5 \times 10^9$$

$$1 \leq 2.5 < 10$$

2 $(2 \times 10^3) \div (2.5 \times 10^8)$

3 $(3 \times 10^{-4}) \div (1.5 \times 10^8)$

4 $(6 \times 10^4) \div (3 \times 10^2)$

5 $(4.5 \times 10^7) \div (7.5 \times 10^{-3})$

6 $(6 \times 10^8) \div (4 \times 10^4)$

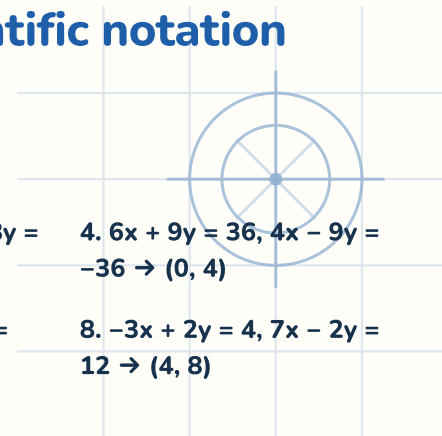
7 $(1.2 \times 10^3) \div (1.5 \times 10^5)$

8 $(4.5 \times 10^4) \div (7.5 \times 10^7)$



Power Pack · Systems, absolute value and scientific notation

— Answer key



By elimination

- | | | | |
|--|--|---|--|
| 1. $-2x + 12y = -30$, $x - 12y = 15 \rightarrow (15, 0)$ | 2. $5x + 2y = -12$, $8x - 2y = 38 \rightarrow (2, -11)$ | 3. $8x + 8y = -56$, $-5x - 8y = 20 \rightarrow (-12, 5)$ | 4. $6x + 9y = 36$, $4x - 9y = -36 \rightarrow (0, 4)$ |
| 5. $-5x + 8y = -60$, $6x - 8y = 56 \rightarrow (-4, -10)$ | 6. $x + 2y = 6$, $11x - 2y = 18 \rightarrow (2, 2)$ | 7. $6x + 6y = 42$, $2x - 6y = -34 \rightarrow (1, 6)$ | 8. $-3x + 2y = 4$, $7x - 2y = 12 \rightarrow (4, 8)$ |

By substitution

- | | | | |
|---|---|--|--|
| 1. $y = -x + 8$, $5x - 2y = -37 \rightarrow (-3, 11)$ | 2. $y = 2x + 13$, $-6x + 7y = -5 \rightarrow (-12, -11)$ | 3. $y = 3x - 18$, $-x + 9y = -6 \rightarrow (6, 0)$ | 4. $y = x - 7$, $2x + 2y = 34 \rightarrow (12, 5)$ |
| 5. $y = 3x - 18$, $-12x + 7y = -36 \rightarrow (10, 12)$ | 6. $y = 3x + 1$, $10x - 2y = -2 \rightarrow (0, 1)$ | 7. $y = 4x + 8$, $-12x + 3y = 24 \rightarrow (1, 12)$ | 8. $y = x + 15$, $6x + 2y = 30 \rightarrow (0, 15)$ |

$|x + b| = c$

- | | | | |
|---|--|--|---|
| 1. $ x - 4 = 6 \rightarrow x = -2$ or $x = 10$ | 2. $ x - 6 = 4 \rightarrow x = 2$ or $x = 10$ | 3. $ x + 4 = 4 \rightarrow x = -8$ or $x = 0$ | 4. $ x - 6 = 8 \rightarrow x = -2$ or $x = 14$ |
| 5. $ x - 1 = 6 \rightarrow x = -5$ or $x = 7$ | 6. $ x + 3 = 4 \rightarrow x = -7$ or $x = 1$ | 7. $ x = 7 \rightarrow x = -7$ or $x = 7$ | 8. $ x + 1 = 4 \rightarrow x = -5$ or $x = 3$ |

$|ax + b| = c$

- | | | | |
|--|--|--|---|
| 1. $ 3x - 6 = 6 \rightarrow x = 0$ or $x = 4$ | 2. $ 3x - 3 = 21 \rightarrow x = -6$ or $x = 8$ | 3. $ 2x - 8 = 2 \rightarrow x = 3$ or $x = 5$ | 4. $ 3x - 6 = 9 \rightarrow x = -1$ or $x = 5$ |
| 5. $ 2x - 4 = 4 \rightarrow x = 0$ or $x = 4$ | 6. $ 2x + 2 = 2 \rightarrow x = -2$ or $x = 0$ | 7. $ 3x - 9 = 12 \rightarrow x = -1$ or $x = 7$ | 8. $ 2x + 4 = 6 \rightarrow x = -5$ or $x = 1$ |

Multiplying in scientific notation

- | | | | |
|--|--|--|--|
| 1. $(5 \times 10^{-1}) \times (8 \times 10^{-3}) = 4 \times 10^{-3}$ | 2. $(6 \times 10^6) \times (8 \times 10^{-5}) = 4.8 \times 10^2$ | 3. $(4 \times 10^6) \times (2 \times 10^5) = 8 \times 10^{11}$ | 4. $(3 \times 10^7) \times (6 \times 10^2) = 1.8 \times 10^{10}$ |
| 5. $(3 \times 10^{-4}) \times (1.5 \times 10^8) = 4.5 \times 10^4$ | 6. $(5 \times 10^4) \times (8 \times 10^{-4}) = 4 \times 10^1$ | 7. $(3 \times 10^{-2}) \times (1.5 \times 10^7) = 4.5 \times 10^5$ | 8. $(2 \times 10^{-1}) \times (2 \times 10^3) = 4 \times 10^2$ |

Dividing in scientific notation

- | | | | |
|--|--|--|--|
| 1. $(7.5 \times 10^7) \div (3 \times 10^{-2}) = 2.5 \times 10^9$ | 2. $(2 \times 10^3) \div (2.5 \times 10^8) = 8 \times 10^{-6}$ | 3. $(3 \times 10^{-4}) \div (1.5 \times 10^8) = 2 \times 10^{-12}$ | 4. $(6 \times 10^4) \div (3 \times 10^2) = 2 \times 10^2$ |
| 5. $(4.5 \times 10^7) \div (7.5 \times 10^{-3}) = 6 \times 10^9$ | 6. $(6 \times 10^8) \div (4 \times 10^4) = 1.5 \times 10^4$ | 7. $(1.2 \times 10^3) \div (1.5 \times 10^5) = 8 \times 10^{-3}$ | 8. $(4.5 \times 10^4) \div (7.5 \times 10^7) = 6 \times 10^{-4}$ |