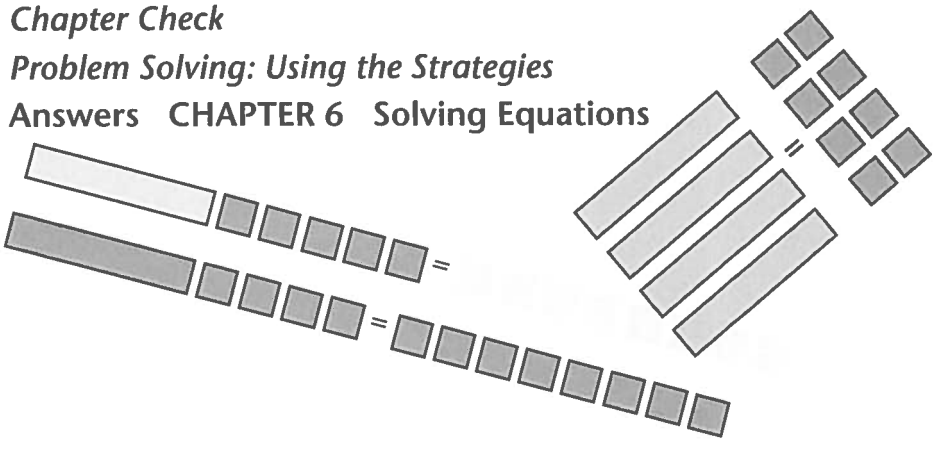
CHAPTER

6

Solving Equations



Skill Builder

NO CALCULATOR

Subtract.

Hint: *Change cents to a decimal. 3¢ = $0.03*

1. $24 − 3¢ = _____
2. $16 − 25¢ = _____
3. $19 − 54¢ = _____
4. $80 − 4¢ = _____
5. $26 − 1¢ = _____
6. $54 − 75¢ = _____
7. $6 − 8¢ = _____
8. $10 − 30¢ = _____
9. $145 − 50¢ = _____
10. $67 − 7¢ = _____

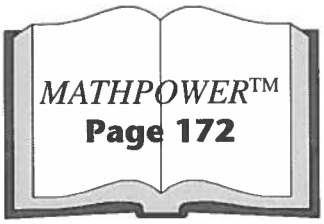
Rough Work:

1. *$24.00*
   − 0.03
   _____

2. *$16.00*
   − 0.25
   _____

GETTING STARTED

Work together with your classmates, using your *MATHPOWER*™ student text, page 172.



Order of Operations

Calculate.

1. $3 \times 2 + 5$

   $= \_\_\_\_ + 5$ (Multiply)

   $= \square$ (Add)

2. $3 + 2 \times 5$

   $= 3 + \_\_\_\_$

   $= \square$

3. $3 \times (2 + 5)$

   $= 3 \times \_\_\_\_$ (Brackets)

   $= \square$ (Multiply)

4. $6 \times (8 - 2)$

   $= \_\_\_\_$

   $= \square$

BEDMAS

- **B** → **B**rackets
- **E** → **E**xponents
- **D** → **D**ivision
- **M** → **M**ultiplication

Do in the order they appear.

- **A** → **A**ddition
- **S** → **S**ubtraction

Do in the order they appear.

5. $(2 + 3) \times 5$

$= \_\_\_\_ \times \_\_\_\_$

$= \square$

6. $(3 + 2) \div 5$

$= \_\_\_\_ \div \_\_\_\_$

$= \square$

7. $(8 + 1) \div 3$

$= \_\_\_\_ \div \_\_\_\_$

$= \square$

8. $3 \times 2 - 5$

9. $3 \times 5 \div 5$

10. $6 \div 2 + 5$

11. $3^2 - 2^2$

$= (3 \times 3) - (2 \times 2)$

$= \_\_\_\_ - \_\_\_\_$

$= \square$

12. $2^2 + 4^2$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_ + \_\_\_\_$

$= \square$

13. $1^2 + 2^2 + 3^2$

14. $3 \times 2 + 5 \times 2$

$= (3 \times 2) + (5 \times 2)$

$= \_\_\_\_ + \_\_\_\_$

$= \square$

15. $2 \times 2 + 4 \times 3$

$=$

16. $4 \times 3 - 2^2$

$=$

Mental Math

NO CALCULATOR

1. *Add.*

a) 45 + 10	**b)** 45 + 100	**c)** 625 + 5	**d)** 625 + 25	**e)** 350 + 50
f) 350 + 150	**g)** 350 + 250	**h)** 350 + 1000	**i)** 38 + 12	**j)** 38 + 102

2. *Subtract.*

a) 125 − 5	**b)** 125 − 15	**c)** 125 − 25	**d)** 125 − 50	**e)** 418 − 8
f) 418 − 18	**g)** 418 − 108	**h)** 438 − 28	**i)** 147 − 17	**j)** 147 − 27

Continues on next page. →

3. *Multiply.*

a) 12×4 _____

b) 12×40 _____

c) 25×2 _____

d) 25×20 _____

e) 25×4 _____

f) 25×40 _____

g) 47×100 _____

h) 47×1000 _____

i) 80×5 _____

j) 800×50 _____

4. *Divide.*

a) $7 \overline{)35}$

b) $7 \overline{)350}$

c) $7 \overline{)3500}$

d) $350 \div 10 =$ _____

e) $3500 \div 10 =$ _____

f) $35\,000 \div 10 =$ _____

g) $\frac{720}{10} =$ _____

h) $\frac{7200}{100} =$ _____

i) $\frac{72\,000}{100} =$ _____

5. *Find the remainder.*

a)
$$\begin{array}{r} 4 \text{ R } \square \\ 5 \overline{)24} \\ -\,20 \\ \hline 4 \end{array}$$

b) $6 \overline{)15}$

c) $8 \overline{)45}$

d) $7 \overline{)36}$

e) $5 \overline{)36}$

f) $8 \overline{)50}$

g) $9 \overline{)55}$

h) $10 \overline{)36}$

6. *Calculate.* *Watch the signs!*

a) $3.6 + 0.1$ _____

b) $4.25 + 0.01$ _____

c) $63.5 - 0.2$ _____

d) $63.57 - 0.02$ _____

e) 5.25×0.1 _____

f) 5.27×0.01 _____

g) $0.1 \overline{)75.5}$

h) $0.01 \overline{)75.5}$

Skill Builder

1. *Complete the table.*

Written Expression	Algebraic Expression
a) twice the radius	$2r$
b) the width minus 7	
c) three times the height	
d) half the length	
e) twice the width	
f) five times the diameter	

2. *Calculate.*

"**of**" means to multiply

a) $\frac{1}{2}$ *of* 12

$= \frac{1}{2} \times \frac{12}{1}$

$= \frac{\square}{\square}$

$=$ ____

b) $\frac{1}{2}$ *of* 100

c) $\frac{1}{5}$ *of* 50

d) $\frac{1}{3}$ *of* 66

e) $\frac{1}{8}$ *of* 400

f) $\frac{1}{7}$ *of* 350

Pattern Zapper

The 3×3 square comes from a calendar.

	5	

a) Complete the square.

b) What is the sum of each diagonal?

_____ and _____ .

c) What is the sum of the middle row?

_____

d) What is the sum of the middle column? _____

6.1 Writing Equations

Practice

1. *Write each equation in **words**.*

> **Example:**
> $m + 5 = 10$ → **Five more than a number, m, is ten.**

a) $x - 5 = 7$ → _____

b) $y + 2 = 11$ → _____

c) $2m = 8$ → _____

d) $\frac{n}{4} = 3$ → _____

e) $m + 3 = 7 - m$ → _____

_____

f) $2 + 3t = 5$ → _____

_____

g) $\frac{a}{3} - 2 = 4$ → _____

_____

2. *Write an **equation** for each sentence.*

> **Example:**
> When three is added to a number, the result is thirteen. → $y + 3 = 13$

a) Four more than a number is nineteen. → _____

b) Three less than a number is nine. → _____

c) Four times a number is twelve. → _____

d) Twelve decreased by a number is four. → _____

e) A number divided by four is three. → _____

f) A number multiplied by 4, then increased by three, is eleven. → $4x + \square = \square$

g) A number multiplied by three, then decreased by five, is ten. → _____

h) Four less than twice a number is fifty. → $2x - \square = \square$

i) Twelve less than three times a number is six. → _____

3. *Let a **letter** represent the **unknown** and then write an **equation**.*

Example:

Two less than a number is three.

Let n represent the number.

$n - 2 = 3$

a) The length increased by four is eleven.

Let l represent _____ .

Equation: → _____

b) Five times the width is sixty.

Let _____

Equation: → _____

c) The perimeter decreased by six is forty.

_____

_____

d) A number divided by six is two.

_____

_____

e) Six more than twice a number is ten.

_____

_____

Problems and Applications

4. *Write an **equation** for each problem.*

a) Three years from now, Jenny's age will be sixteen. What is Jenny's age?

Let j represent Jenny's age now.

$j + \square = \square$

b) A number increased by seven equals fifteen. What is the number?

Let n represent _____

Equation: → _____

c) If Renee's age is decreased by nine, the result is nineteen. How old is Renee?

Let _____

Equation: → _____

d) Twice Miki's keyboarding rate is 50 words/min. What is Miki's keyboarding rate?

_____

_____

5. Write a **word problem** that could be solved by each equation.

a) $x + 3 = 11$

_____

_____

_____

b) $3y = 18$

_____

_____

_____

Skill Builder

1. *Substitute, then calculate.*

a) $x + 2$, $x = 3$

$= 3 + 2$ (Substitute)

$=$ _____ (Calculate)

b) $5y$, $y = 8$

c) $9 - m$, $m = 5$

d) $r - 4$, $r = 6$

e) $3t + 1$, $t = 2$

$= (3 \times 2) + 1$

$= \square + 1$

$=$ _____

f) $2x - 6$, $x = 9$

2. *Estimate.*

a) $\begin{array}{r} 135 \\ +\ 64 \\ \hline \end{array}$ Est. $\begin{array}{r} 130 \\ +\ 70 \\ \hline \end{array}$

b) $\begin{array}{r} 183 \\ -\ 122 \\ \hline \end{array}$ Est.

c) $\begin{array}{r} 45.4 \\ -\ 32.1 \\ \hline \end{array}$ Est.

d) $\begin{array}{r} 3.8 \\ +\ 5.9 \\ \hline \end{array}$ Est.

e) $\begin{array}{r} 681 \\ +\ 94 \\ \hline \end{array}$ Est.

c) $\begin{array}{r} 7.8 \\ -\ 2.6 \\ \hline \end{array}$ Est.

6.2 Solving Equations

Practice

1. *Does the number in brackets make each equation **true** or **false**?*

a) $n + 5 = 11$ $(n = 6)$ _____

Does $6 + 5 = 11$? ← Substitute

$\square = 11$

b) $4n = 12$ $(n = 3)$ _____

$4 \times \square = 12$? ← Substitute

$\square = 12$

c) $y - 8 = 12$ $(y = 14)$ _____

d) $x - 9 = 11$ $(x = 10)$ _____

e) $\frac{x}{3} = 5$ $(x = 8)$ _____

f) $\frac{y}{2} = 4$ $(y = 8)$ _____

2. *Solve by inspection.*

a) $x + 4 = 10$

$x = \square$

b) $z + 7 = 14$ _____

c) $u + 6 = 15$ _____

3. *Solve by inspection.*

a) $n - 6 = 5$

$n = \square$

b) $x - 4 = 8$ _____

c) $y - 12 = 12$ _____

4. *Solve by inspection.*

a) $5m = 35$

$m = \square$

b) $5n = 45$ _____

c) $4y = 24$ _____

5. *Solve by inspection.*

a) $\frac{x}{7} = 5$

$x = \square$

b) $\frac{y}{2} = 9$ _____

c) $\frac{n}{4} = 8$ _____

6. *Solve and check.*

a) $10 + x = 19$

$x =$ ☐

CHECK:

L.S. = 10 + x *R.S. = 19*

= 10 + ☐

= ☐

Does L.S. = R.S.?

b) $12 - x = 8$

CHECK:

c) $4m = 28$

CHECK:

d) $\frac{y}{5} = 4$

CHECK:

7. *Solve by guess and check.*

a) $5x + 3 = 13$

Try: $x = 1$ $5x + 3 = (5 \times 1) + 3$

$= \_\_\_\_ + 3$

$= \_\_\_\_\_$

Try: $x = 2$ $5x + 3 = (5 \times 2) + 3$

$= \_\_\_\_ + 3$

$= \_\_\_\_\_$

The solution is $x =$ ☐.

b) $2n + 1 = 13$

Try: $n =$

Try: $n =$

_____

Problems and Applications

8. ***Circle** the equation that could be used to solve each problem.*

a) Five more than a number is 20. What is the number?

i) $n - 20 = 5$ **ii)** $n + 5 = 20$

iii) $n - 5 = 20$ **iv)** $5n = 20$

b) Five times a number is 10. What is the number?

i) $5n = 10$ **ii)** $5 - n = 10$

iii) $n + 5 = 10$ **iv)** $n + 10 = 5$

c) Twice a number, then increased by five, is eleven. What is the number?

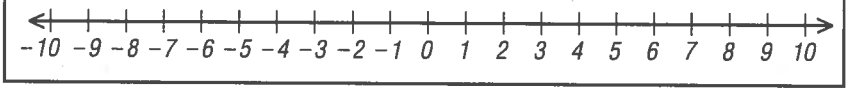
i) $2n - 5 = 11$ **ii)** $2n + 11 = 5$

iii) $2n - 11 = 5$ **iv)** $2n + 5 = 11$

Skill Builder

1 *Add.*

Use the number line to help you.



a) $(+4) + (-4) =$ ☐ **b)** $(+6) + (-2) =$ ☐ **c)** $(-3) + (+5) =$ ☐

d) $(+5) + (+3) =$ ☐ **e)** $(-8) + (+5) =$ ☐ **f)** $(-7) + (-1) =$ ☐

To find the hidden letter in the large square below, shade the box with the correct answer to each question above and a letter will appear.

0	−3	−8
13	+4	−2
−4	+8	−6
1	+2	−13

2. *Add.*

a) \$4.98 + 2¢ = _____

b) \$1.94 + 6¢ = _____

c) \$25.95 + 5¢ = _____

d) \$64.97 + 3¢ = _____

e) \$61.99 + 1¢ = _____

f) \$1.92 + 8¢ = _____

g) \$33.91 + 9¢ = _____

Rough Work:

\$4.98
+ 0.02
_____
_____

LEARNING TOGETHER Algebra Tiles

Work together with your classmates, using your *MATHPOWER*™ student text, pages 178 and 179.

MATHPOWER™ **Pages 178 to 179**

Skill Builder

1. ***Match*** *the correct solution to each equation.*

Equation	Solution
a) $m - 4 = 5$	$m = 3$
b) $m - 3 = 5$	$m = 7$
c) $m - 2 = 5$	$m = 5$
d) $m + 1 = 6$	$m = 9$
e) $m + 2 = 6$	$m = 4$
f) $m + 3 = 6$	$m = 8$

2. *Solve by* ***inspection.***

a) $3x = 6$

$x =$ ☐

b) $2x = 12$ _____

c) $5x = 5$ _____

3. *Calculate.*

a) $3 + (-1) =$ _____ b) $(-5) + (-2) =$ _____ c) $(-7) + (+8) =$ _____

6.3 Solving Equations by Addition

Practice

1. *What number would you* ***add*** *to both sides to solve each equation?*

Example: $x - 5 = 12$

Step ①: ■□□□□□ = ■■■■■■■■■■■■

Step ②: ■□□□□□ = ■■■■■■■■■■■■
□□□□□ □□□□□

Add +5 to both sides.

a) $x - 8 = 10$ **Add** ☐.

b) $x - 7 = 15$ _____

c) $z - 5 = 12$ _____

d) $y - 1 = 2$ _____

e) $2 = x - 3$ _____

f) $7 = y - 4$ _____

2. *What number would you* ***add*** *to both sides to solve each equation?*

Example:

$x + 3 = 7$

Step ① : ▬ □□□ = □□□□□□

Step ② : ▬ □□□ = □□□□□□
□□□ □□□

Add −3 to both sides.

a) $x + 5 = 11$ **Add** $\square$.

b) $y + 8 = 12$ _____

c) $x + 2 = 23$ _____

d) $x + 15 = 45$ _____

e) $32 = y + 7$ _____

f) $25 = x + 7$ _____

3. *Solve and check.*

Show your work!

a) $p - 3 = 6$

$p - 3 = 6$
$+3 \quad = \quad +3$
$p = \square$

or

$p - 3 + 3 = 6 + 3$
$p = \square$

CHECK:
L.S. = $p - 3$ R.S. = 6
$= \square - 3$
$=$ _____

b) $y - 5 = 3$

CHECK:

c) $r - 7 = 2$

CHECK:

d) $x - 12 = 0$

CHECK:

e) $4 = y - 6$

Rewrite, then solve.

$y - 6 = 4$
$+6 = +6$
$y =$ _____

or

$y - 6 = 4$
$y - 6 + \square = 4 + \square$
$y =$ _____

CHECK:

f) $10 = x - 5$

CHECK:

4. *Solve and check.*

a) $y + 9 = 17$

$y + 9 = 17$
$-9 = -9$
$y =$ _____

or

$y + 9 - 9 = 17 - 9$
$y =$ _____

CHECK:

b) $z + 8 = 16$

CHECK:

c) $q + 15 = 35$

CHECK:

d) $x + 5 = 18$

CHECK:

e) $12 = x + 2$

Rewrite

$x + 2 = 12$

$-2 = -2$

$x =$ _____

or

$x + 2 = 12$

$x + 2 +$ ☐ $= 12 +$ ☐

$x =$ _____

CHECK:

f) $20 = 8 + m$

CHECK:

5. *Solve and check.*

a) $x - 3 = 5.2$

CHECK:

b) $z - 3.5 = 8$

CHECK:

c) $z + 4 = 6.7$

CHECK:

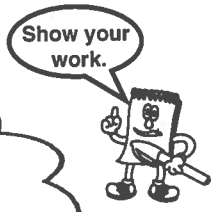
d) $r + 3 = 8.2$

CHECK:

Problems and Applications

6. Nick paid \$9 for a pen. He had \$7 left. How much did Nick have at the start?

Show your work.



Let x = amount Nick had at the start.

Solve ⟶ $x - 9 = 7$

CHECK:

7. The temperature in St. John's, Newfoundland, was 15°C lower than in Calcutta, India. It was 20°C in St. John's. Solve the equation

$x - 15 = 20$

to find the temperature for Calcutta.

CHECK:

8. The sum of Jody's age and her sister Stacey's age is 26. Jody is 14. How old is Stacey?

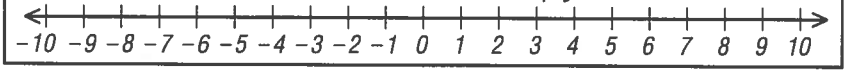
Let s = Stacey's age.

Solve ⟶ $s + 14 = 26$

CHECK:

9. *Solve and check.*

Use the number line to help you.



a) $x - 4 = -7$

CHECK:

b) $y - 5 = -9$

CHECK:

c) $x + 7 = 4$

CHECK:

d) $y + 6 = 3$

CHECK:

Number Zapper

1 year = 365 days

Leap year = 366 days

On what day, in which month and year, will you have lived for 5000 days?

Skill Builder

1. *Solve by inspection.*

a) $2s = 14$, $s =$ ☐

b) $3s = 24$, $s =$ ☐

c) $4s = 24$, $s =$ ☐

d) $6s = 24$, $s =$ ☐

2. *Divide.*

⊕ ÷ ⊕ = ⊕
⊖ ÷ ⊖ = ⊕
⊕ ÷ ⊖ = ⊖
⊖ ÷ ⊕ = ⊖

a) $\frac{8}{-2} =$ _____

b) $\frac{-4}{-2} =$ _____

c) $\frac{-7}{7} =$ _____

d) $(-16) \div (+2) =$ _____

e) $20 \div (-5) =$ _____

f) $(-8) \div (-8) =$ _____

3. *Which numbers have 5 as a* ***factor****?*

a) 326 _____ **b)** 555 _____ **c)** 221 _____

Will 5 divide into the last digit?

4. *Which numbers have 2 as a* ***factor****?*

a) 527 _____ **b)** 5490 _____ **c)** 274 _____

6.4 Solving Equations by Division

Practice

1. *By what* ***number*** *would you* ***divide*** *both sides to solve each equation?*

a) $3x = 6$ **Divide by 3.** 

b) $5x = 10$ **Divide by** ☐.

c) $7z = 42$ _____

d) $4t = 20$ _____

e) $9s = 27$ _____

f) $10m = 60$ _____

g) $15y = 45$ _____

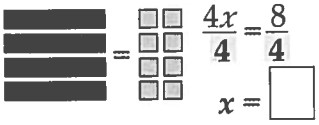
h) $3x = 15$ _____

i) $6n = 18$ _____

j) $7x = 35$ _____

2. *Solve and check.*

a) $4x = 8$



$\frac{4x}{4} = \frac{8}{4}$

$x =$ ☐

CHECK:

L.S. = $4x$ R.S. = 8

$= 4($ $)$

$=$ ☐

b) $9y = 9$

CHECK:

c) $2r = 18$

CHECK:

d) $6w = 60$

CHECK:

e) $8x = 32$

CHECK:

f) $10m = 50$

CHECK:

g) $7n = 28$

CHECK:

h) $20y = 100$

CHECK:

i) $10 = 5x$

$5x =$ _____

Rewrite

Solve

CHECK:

j) $24 = 8x$

CHECK:

k) $20 = 5t$ (Rewrite)

CHECK:

l) $45 = 5z$

CHECK:

3. *Solve and check.*

a) $4y = 4.8$

$\frac{4y}{4} = \frac{4.8}{4}$

$y =$ ☐

CHECK:

b) $5w = 4.5$

CHECK:

c) $0.2n = 8$

CHECK:

d) $0.4t = 0.8$

CHECK:

Problems and Applications

4. Paul is 5 times as old as Mike. Paul is 55 years old. Solve the equation $5x = 55$ to find Mike's age.

CHECK:

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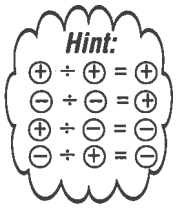
5. *Solve and check.*

a) $4x = -8$

CHECK:

b) $3x = -12$

CHECK:



c) $2x = -8$

CHECK:

d) $-5x = -20$

CHECK:

Skill Builder

1. **What must a math student always do after solving a problem?**

To find the answer,

- *solve each equation, then*
- *place the matching letter in the blank above its answer.*

K: $6x = 36$ **E:** $5x = 40$ **H:** $7x = 35$ **C:** $9y = 90$

____	____	____	____	____	!
10	5	8	10	6	

2. *Multiply.*

Hint: ⊕ x ⊕ = ⊕, ⊖ x ⊖ = ⊕, ⊕ x ⊖ = ⊖, ⊖ x ⊕ = ⊖

a) $(-4) \times (-4) =$ _____ b) $(5) \times 3 =$ _____

c) $7 \times (-3) =$ _____ d) $0 \times 5 =$ _____

6.5 Solving Equations by Multiplication

Practice

1. *By what **number** would you **multiply** both sides to solve each equation?*

a) $\frac{x}{3} = 5$ **Multiply by 3.** b) $\frac{y}{2} = 4$ **Multiply by** ☐.

c) $\frac{t}{5} = 5$ _____ d) $\frac{w}{4} = 4$ _____

e) $\frac{x}{7} = 5$ _____ f) $\frac{m}{6} = 4$ _____

2. *Solve and check.*

a) $\frac{x}{4} = 8$

$\frac{x}{4} = 8$

$4 \times \frac{x}{4} = 4 \times 8$

$x =$ _____

CHECK:

L.S. $= \frac{x}{4}$ R.S. $= 8$

$= \frac{\square}{4}$

$=$ _____

b) $\frac{y}{2} = 8$

CHECK:

c) $\frac{m}{3} = 6$

CHECK:

d) $\frac{y}{3} = 8$

CHECK:

e) $\frac{x}{5} = 5$

CHECK:

f) $\frac{y}{2} = 0$

CHECK:

g) $7 = \frac{x}{7}$

$\frac{x}{7} = 7$ ← Rewrite

← Solve

CHECK:

h) $4 = \frac{y}{2}$

CHECK:

i) $\frac{y}{8} = 1$

CHECK:

j) $\frac{y}{10} = 0$

CHECK:

Write the answers as a decimal.

3. *Solve and check.*

a) $\frac{x}{2} = 3.1$

$2 \times \frac{x}{2} = 2 \times 3.1$

$x =$ _____

CHECK:

b) $\frac{y}{4} = 0.2$

CHECK:

c) $\frac{t}{3} = 1.2$

CHECK:

d) $0.7 = \frac{m}{5}$

← Rewrite

CHECK:

Problems and Applications

4. Edmonton receives $\frac{1}{2}$ as much rain as Winnipeg. Edmonton received 10 cm of rain.

Solve the equation $\frac{x}{2} = 10$ to find how much rain Winnipeg received.

CHECK:

5. *Solve and check.*

a) $\frac{x}{2} = -4$

CHECK:

b) $\frac{y}{3} = -1$

CHECK:

Hint:
⊕ ÷ ⊕ = ⊕
⊖ ÷ ⊖ = ⊕
⊕ ÷ ⊖ = ⊖
⊖ ÷ ⊕ = ⊖

c) $\frac{m}{-4} = 5$

CHECK:

d) $\frac{n}{-5} = -1$

CHECK:

Skill Builder

Evaluate for $a = 5$ *and* $b = 2$.

1. $a - b$
   $= 5 - 2$ ← Substitute
   $=$ ← Calculate

2. $3a$
   $= 3 \times \square$
   $=$ _____

3. $3a - b$

6.6 Like Terms

Practice

1. *Simplify.*

a) $3x + 5x =$ _____

b) $6a - 3a =$ _____

c) $9z - 5z =$ _____

d) $2t + 3t + 4t =$ _____

e) $7w - 2w + 3w =$ _____

f) $9c - 8c - c =$ _____

g) $y + 5y - y =$ _____

h) $6a + 9 + 7a - 3$
$= 6a + 7a + 9 - 3$ (Join like terms)
$= \square a + \square$

i) $3x + 4 + 7x + 3$
$=$ _____
$=$ _____

j) $a + b + b + a$
$= a + a + b + b$
$=$ _____

k) $x + y - x - y$
$=$ _____
$=$ _____

l) $9 + 6b - b + 4b$

m) $6w - 5w - w + 8y$

Problems and Applications

2. *Simplify, then evaluate for* $t = 2$ *and* $w = 3$.

Example:

$5w + 7t - 5t + w$
$= 5w + w + 7t - 5t$ } *Simplify*
$= 6w + 2t$

Then, let $t = 2$ and $w = 3$.

$6w + 2t$
$= (6 \times 3) + (2 \times 2)$ } *Calculate*
$= 18 + 4$
$= 22$

a) $6t - 3t + w + 2w$

$= \square\, t + \square\, w$ *Join like terms.*

Then, evaluate for $t = 2$ and $w = 3$.

$\square\, t + \square\, w$

$= (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$ *Substitute*

$= \square + \square$ *Multiply*

$= \_\_\_\_\_$ *Add*

b) $3t - 2t + 2w - w$

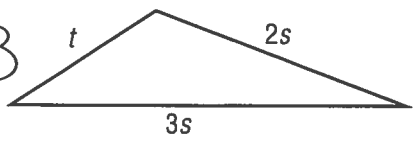
$= \_\_\_\_\_$

c) $6t + 4w - 6t - 3w$

d) $2w + 7t - 5t + w$

3. **a)** Write and simplify an expression for the perimeter of the triangle.

Perimeter → add all the sides.



b) Find the perimeter if $s = 10$ and $t = 5$.

Substitute →

Calculate →

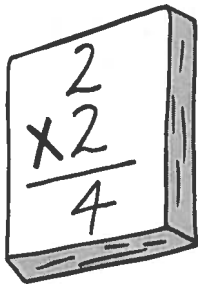
Skill Builder

Simplify.

1. $4x + 2x =$ _____
2. $6a - a =$ _____
3. $5b + c + 2c - b =$ _____
4. $9y - 3y + 2 =$ _____
5. $3b - 2b - c =$ _____
6. $7s + s - s - t - t =$ _____

6.7 The Distributive Property

Practice



1. *Expand.*

Example: Expand $7(t + 3)$.

$$7(t + 3)$$
$$= (7 \times t) + (7 \times 3)$$
$$= 7t + 21$$

a) $2(x + 5)$

$$2(x + 5)$$
$$= (2 \times x) + (2 \times 5)$$
$$= \_\_\_\_\_ + \_\_\_\_\_$$

b) $3(b + 3)$

c) $6(y - 1)$

d) $5(t - 3)$

e) $7(m + 1)$

f) $4(a - 7)$

g) $4(4 + m)$

h) $8(x - 4)$

i) $7(3 + t)$

2. *Expand.*

a) $2(3x + 4)$

$$2(3x + 4)$$
$$= (2 \times 3x) + (2 \times 4)$$
$$= 6x + \square$$

b) $4(2y + 1)$

$$4(2y + 1)$$
$$= \_\_\_\_\_ + \_\_\_\_\_$$
$$= \_\_\_\_\_$$

c) $3(4m - 3)$

d) $5(5t - 2)$

e) $6(1 + 2x)$

f) $4(4w - 7)$

g) $2(3x + 2y)$

$$2(3x + 2y)$$
$$= (2 \times 3x) + (2 \times 2y)$$
$$= \_\_\_\_\_ + \_\_\_\_\_$$

h) $3(4a + 5b)$

$$3(4a + 5b)$$
$$=$$

i) $-3(3m - 2n)$

3. *Expand.*

a) $3(2x + 4y + 1)$

$3(2x + 4y + 1)$

$= (3 \times 2x) + (3 \times 4y) + (3 \times 1)$

$=$ _____ $+$ _____ $+$ _____

b) $2(a + b + 1)$

$2(a + b + 1)$

$=$

c) $4(3c - 2d + 5)$

d) $5(x - 3 + 4y)$

Problems and Applications

4. You can use the **distributive property** to multiply some pairs of numbers.

Example:

20×31

$= 20(30 + 1)$ *Note: 31 = 30 + 1*

$= (20 \times 30) + (20 \times 1)$

$= 600 + 20$

$= 620$

Use the above method to multiply each of the following.

a) 20×33

$= 20(30 +$ _____$)$

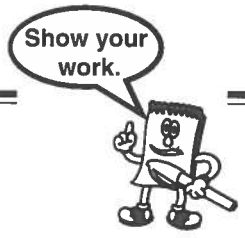
$= ($_____ $\times 20) + ($_____ $\times 20)$

$=$ _____ $+$ _____

$=$ _____

b) 40×21

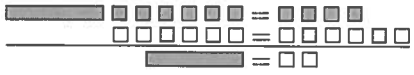
c) 30×33



Skill Builder

1. *Solve and check. Draw the models.*

a) $y + 6 = 4$



$y + 6 = 4$

$-6 = -6$

$y =$ ☐

CHECK:

L.S. $= y + 6$ R.S. $= 4$

$=$ ☐ $+ 6$

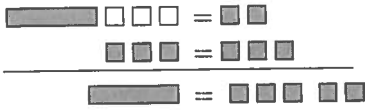
$=$ _____

b) $r + 4 = 6$

CHECK:

Continues on next page. →

c) $t - 3 = 2$



$t - 3 = 2$

$+3 = +3$

$t =$ ☐

CHECK:

d) $a - 4 = 7$

CHECK:

e) $4s = 36$

$\frac{4s}{4} = \frac{36}{4}$

$s =$ ☐

CHECK:

f) $3x = 18$

CHECK:

g) $\frac{q}{5} = 7$

$5 \times \frac{q}{5} = 5 \times 7$

$q =$ ☐

CHECK:

h) $\frac{z}{2} = 3$

CHECK:

2. How does a monster count to 100?

To find out:

- change the following decimals to percents;
- place the matching letter in the blank.

Rule:

To change a decimal to a percent, move the decimal point two places to the right.

0.6 = 60%

550%	*40%*	*95%*	*44%*	*66%*

50%	*12.5%*	*40%*	*180%*	*316%*	*90%*	*66%*

H: 0.95 = _____%

F: 0.5 = _____

R: 0.9 = _____

S: 0.66 = _____

N: 0.4 = _____

G: 1.8 = _____

O: 5.5 = _____

I: 0.125 = _____

E: 3.16 = _____

I: 0.44 = _____

6.8 Solving Equations in More Than One Step

Practice

1. *Solve and check.*

Example: Solve $4b + 2 = 10$.

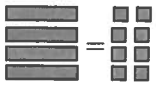
Step ①:

$4b + 2 = 10$

Step ②:

$4b + 2 - 2 = 10 - 2$

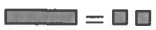
Step ③:



$4b = 8$

$\frac{4b}{4} = \frac{8}{4}$

Step ④:



$b = 2$

OR

$4b + 2 = 10$

$4b + 2 = 10$

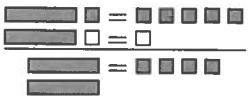
$-2 = -2$

$4b = 8$

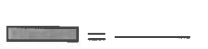
$\frac{4b}{4} = \frac{8}{4}$

$b = 2$

a) $2x + 1 = 5$



Add -1 to both sides.



Divide both sides by 2.

$2x + 1 = 5$

$-1 = -1$

$2x = \square$

$\frac{2x}{2} = \frac{\square}{2}$

$x = \_\_\_\_$

CHECK:

L.S. $= 2x + 1$ R.S. $= 5$

$= 2 \times \square + 1$

$= \_\_\_\_ + 1$

$= \_\_\_\_$

b) $3y + 2 = 11$

Add $\square$ to both sides.

Divide both sides by $\square$.

CHECK:

L.S. $= 3y + 2$ R.S. $= 11$

c) $2e + 4 = 8$

CHECK:

d) $7z + 1 = 15$

CHECK:

e) $4t + 1 = 13$

CHECK:

f) $4b + 2 = 10$

CHECK:

2. *Solve and check.*

a) $2x - 4 = 2$

Add 4 to both sides.

$2x - 4 = 2$

$+\square = +\square$

$2x = \_\_\_\_$

Divide both sides by 2.

$\frac{2x}{\square} = \frac{\square}{\square}$

$x = \_\_\_\_$

CHECK:

L.S. =

R.S. =

b) $4n - 3 = 5$

CHECK:

c) $3s - 6 = 6$

CHECK:

d) $6r - 2 = 10$

CHECK:

e) $3y - 2 = 1$

CHECK:

f) $2b - 9 = 1$

CHECK:

g) $4z - 5 = 3$

CHECK:

3. *Solve and check.*

Example: Solve $\frac{x}{2} + 8 = 15$.

Add −8 to both sides.

$$\frac{x}{2} + 8 = 15$$
$$-8 = -8$$
$$\frac{x}{2} = 7$$

Multiply both sides by 2.

$$2 \times \frac{x}{2} = 2 \times 7$$
$$x = 14$$

CHECK:

L.S. $= \frac{x}{2} + 8$ R.S. $= 15$

$= \frac{14}{2} + 8$

$= 15$ ✔

a) $\frac{x}{2} + 3 = 4$

Add -3 to both sides.

$$\frac{x}{2} + 3 = 4$$
$$-3 = -3$$
$$\frac{x}{2} = \_\_\_\_$$

Multiply both sides by 2.

$$2 \times \frac{x}{2} = \_\_\_\_ \times 2$$
$$x = \_\_\_\_$$

CHECK:

L.S. $= \frac{x}{2} + 3$ *R.S.* $= \square$

b) $\frac{z}{2} + 4 = 6$

CHECK:

c) $\frac{x}{4} + 2 = 3$

CHECK:

d) $\frac{n}{3} - 1 = 1$

Add 1 to both sides.

$$\frac{n}{3} - 1 = 1$$
$$+1 = +1$$
$$\frac{n}{3} = \_\_\_\_$$

Multiply both sides by 3.

$$\square \times \frac{n}{3} = \_\_\_\_ \times \square$$
$$n = \_\_\_\_$$

CHECK:

e) $\frac{a}{2} - 3 = 2$

CHECK:

f) $\frac{m}{5} - 2 = 1$

CHECK:

Problems and Applications

4. Jacob's mass is 16 kg. This mass is 4 kg less than twice Raymond's mass. Solve the equation $2x - 4 = 16$ to find Jacob's mass.

CHECK:

Solve: $2x - 4 = 16$

Start: Add 4 to both sides.

Sentence: _____

Skill Builder

1. *Write an **equation** for each sentence.*

   a) Three more than a number is seven. $n + \square = 7$

   b) A number decreased by 5 is six. _____

   c) The sum of a number and one is 9. _____

   d) A number multiplied by four is 32. _____

   e) A number divided by 6 is 3. _____

   f) Eight less than a number is 5. _____

Sum: • add

2. *Write the numbers in **standard form**.*

   a) five hundred sixty-two _____

   b) three and four tenths _____

   c) one million forty _____

   d) seven thousandths _____

   e) fifty-three hundredths _____

   f) eight thousand twenty _____

   g) six billion _____

   h) nine thousandths _____

   i) two thousand ten _____

   j) four and one hundredth _____

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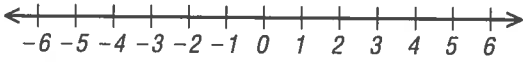
NO CALCULATOR

3. *Add.*



a) $2 + (-3) =$ _____ b) $(-5) + (-1) =$ _____ c) $(-6) + 3 =$ _____

4. *Multiply.*

a) $(-4) \times (-6) =$ _____ b) $(-9) \times 2 =$ _____ c) $6 \times (-5) =$ _____

PROBLEM SOLVING

6.9 Using Equations to Solve Problems

Problems and Applications

1. Mary has 2 CDs more than Jamil. Together they have 18 CDs. How many CDs does Mary have?

Let j = number of CDs Jamil has.

So $j + 2$ = number of CDs Mary has.

Think: Mary's CDs + Jamil's CDs = 18

_____ $+ j = 18$

Solve:

Sentence: _____

2. Earla earned \$5.00 more than three times as much as Murray earned. Earla earned \$35.00. How much did Murray earn?

Let m = amount Murray earned.

$3m +$ _____ = _____

Sentence: _____

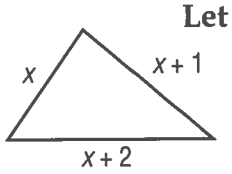
3. The sum of three times a number and three is 15. What is the number?

Let n = _____

Sentence: _____

4. The side lengths in a triangle are three consecutive whole numbers. The perimeter of the triangle is 18 cm. What is the length of each side?

Consecutive numbers → 5, 6, 7, 8 or → 3, 4, 5, 6



Let x = _____

Equation:

Add the sides.

_____ + _____ + _____ = 18

Join like terms.

Solve

CHECK:

Sentence: _____

Skill Builder

1. *Evaluate.*

NO CALCULATOR

a) $8^2 = 8 \times 8 =$ _____

b) $1^6 =$ _____ = _____

c) $3^3 =$ _____ = _____

d) $10^4 =$ _____ = _____

e) $2^3 =$ _____ = _____

f) $6^2 =$ _____ = _____

g) $4^0 =$ _____

h) $7^0 =$ _____

2. *Solve and check.*

a) $4y + 8 = 12$

CHECK:

b) $5x - 2 = 13$

CHECK:

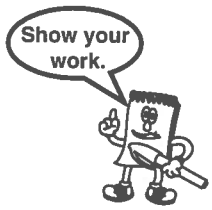
3. *Add.*

a) $(4) + (-6) =$ _____

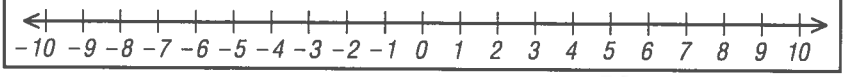
b) $(-3) + (-7) =$ _____

c) $(-9) + 11 =$ _____

6.10 Equations With Rational Solutions



Use the number line to help you.



Practice

1. *Solve and check.*

a) $x - 1 = -4$

Step ①: ▭ □ = □□□□

Step ②: ▭ □ = □□□□
□ = □

Step ③: ▭ = □□□

Add 1.

$x - 1 = -4$
$+1 = +1$
$x =$ □

CHECK:

b) $x + 4 = 2$

Add −4.

CHECK:

c) $z - 3 = -7$

Add _____.

CHECK:

d) $t + 6 = -1$

Add _____.

CHECK:

e) $y - 2 = -5$

Add _____.

CHECK:

f) $m + 9 = 4$

Add _____.

CHECK:

2. *Solve and check.*

a) $\frac{b}{2} = -6$

Multiply by 2. $2 \times \frac{b}{2} = -6 \times 2$

$b =$ □

CHECK:

b) $\frac{a}{3} = -7$

CHECK:

c) $\frac{x}{-4} = 3$

CHECK:

d) $\frac{x}{-5} = 8$

CHECK:

3. *Solve and check.*

a) $2x - 1 = -3$

Add 1.

$2x - 1 = -3$

$+1 = +1$

$2x =$ ____

Divide by 2.

$\frac{2x}{2} = \frac{\square}{2}$

$x =$ ____

CHECK:

b) $2y + 5 = 1$

Add −5.

CHECK:

c) $4t + 1 = -7$

Add ____

CHECK:

d) $5a - 3 = -3$

CHECK:

e) $6x - 1 = -7$

CHECK:

f) $2r + 7 = 7$

CHECK:

g) $4m - 6 = -2$

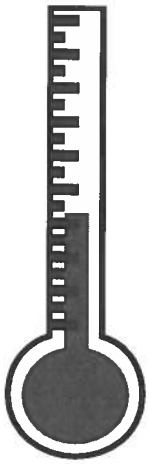
CHECK:

h) $3m + 5 = -4$

CHECK:

Problems and Applications

4. Jen wanted to know what the temperature was outside. Jason told her, "If you multiply the temperature by three and then add 5 you will get −4°C." What is the temperature?



Let t = _____

Equation:

$\square\, t + \square = \square$

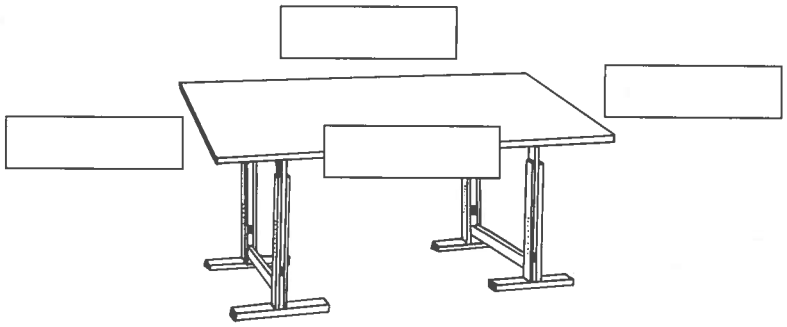
Solve

Sentence: _____

Each member of the Johnson family sits in the same place at every meal. The children are Jody and Stacey.

- Mrs. Johnson sits opposite Mr. Johnson.
- Stacey sits opposite Jody.
- Jody sits to the right of Mr. Johnson.

Label their seating at the table.



Review

1. *Write each equation in words.*

Example:
$x + 8 = 9$ → **A number increased by eight is nine.**

a) $x + 2 = 3$ _____

b) $3x = 12$ _____

c) $\frac{x}{4} = 3$ _____

d) $3 - 2x = 1$ _____

e) $5x + 2 = 7$ _____

2. *Write an equation for each sentence.*

Example:
Eight less than twice a number is nine. → $2x - 8 = 9$

a) Seven less than twice a number is eleven. → _____

b) Nine more than a number is twelve. → _____

c) One half of a number increased by eleven is thirty. → _____

3. *Decide if the number in brackets is a solution of the equation. Circle* **Yes** *or* **No**.

a) $x + 3 = 7$ (4)

Check: $4 + 3 = 7$ Substitute $x = 4$.

Does $\square = 7$ → **Yes or No**

b) $y - 4 = 3$ (1)

Substitute $y =$ _____.

Yes or No

c) $\frac{t}{3} = 6$ (2)

d) $5d = 15$ (3)

Yes or No

Yes or No

e) $2s + 1 = 5$ (2)

$(2 \times 2) + 1 = 5$

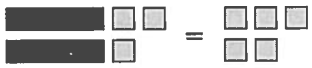
$\square + 1 = 5$

_____ $= 5$ **Yes or No**

f) $3n - 2 = 7$ (3)

Yes or No

4. The algebra tiles show the equation for $2x + 3 = 5$.



Draw the model of algebra tiles to show each of the following equations.

a) $2x + 1 = 3$

b) $x - 2 = 5$

c) $x + 5 = -2$

d) $3x - 1 = 8$

5. *Solve and check.*

a) $a + 5 = 11$

Add −5 to both sides. →

$a + 5 = 11$

$-5 = -5$

$a =$ ☐

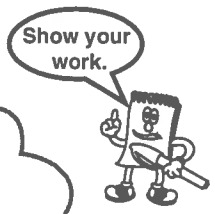
CHECK:

L.S. = $a + 5$ R.S. = 11

= ☐ + 5

= _____

b) $x + 7 = 15$



CHECK:

c) $b - 3 = 7$

Add 3 to both sides. →

$b - 3 = 7$

☐ = ☐

$b =$ _____

CHECK:

d) $m - 10 = 3$

CHECK:

e) $3x = 12$

Divide both sides by 3. →

$\frac{3x}{☐} = \frac{12}{☐}$

$x =$ _____

CHECK:

f) $5n = 20$

CHECK:

g) $\frac{y}{2} = 5$

Multiply both sides by 2. →

☐ $\times \frac{y}{2} =$ ☐ $\times 5$

$y =$ _____

CHECK:

h) $\frac{a}{3} = 2$

CHECK:

6. *Simplify.*

Example:
① $w + 2w - w + 4w = \mathbf{6w}$
② $9a - 3a + 8 - 5 = \mathbf{6a + 3}$

Join like terms!

a) $5x + 3x =$ _____

b) $9a - 6a =$ _____

c) $4w - 2w + w =$ _____

d) $6n + 4 - 3n - 3$
$= 6n - 3n + 4 - 3$
$=$ ☐ $n +$ ____

e) $2 + 7k + k - 2k$
_____

f) $2b - 4 + 3b - 1$
_____

7. *Expand.*

Example: Expand $6(x - 2)$
$6(x - 2)$
$= (6 \times x) - (6 \times 2)$
$= \mathbf{6x - 12}$

a) $4(x + 1)$
$\mathbf{4(x + 1)}$
$= (4 \times$ ☐ $) + (4 \times$ ☐ $)$
$=$ _____

b) $3(2a - 2)$

c) $2(4m + 3)$

d) $6(2s - t)$

e) $3(p - 2q)$

f) $2(-x - 4y)$

8. *Solve and check.*

a) $2m + 1 = 9$
$\mathbf{2m + 1 = 9}$
Add −1 $\quad -1 = -1$
Divide by 2 $\quad \frac{2m}{\square} = \frac{\square}{\square}$
$m =$ ☐

CHECK:
L.S. $= 2m + 1$ R.S. $= 9$
$= 2 \times$ ☐ $+ 1$
$=$ ☐ $+ 1$
$=$ _____

b) $3z + 5 = 14$

CHECK:

c) $6r - 3 = 9$
$\mathbf{6r - 3 = 9}$
Add 3 $\quad +3 = +3$
Divide by 6 $\quad \frac{6r}{\square} = \frac{\square}{\square}$
$r =$ ☐

CHECK:

d) $2c - 4 = 6$

CHECK:

e) $\frac{n}{2} + 3 = 5$

$\frac{n}{2} + 3 = 5$

Add $\square$. $\square - \square = \square - \square$

$\frac{n}{2} = \_\_\_\_$

Multiply by 2.

$2 \times \frac{n}{2} = \_\_\_\_ \times 2$

$n = \square$

CHECK:

L.S. $= \frac{n}{2} + 3$ R.S. $= 5$

$= \frac{\square}{2} + 3$

$= \square + 3$

$= \_\_\_\_$

f) $\frac{a}{4} - 1 = 2$

CHECK:

Watch for positive and negative numbers.

9. *Solve and check.*

a) $k + 4 = 1$

CHECK:

b) $q - 3 = -7$

CHECK:

c) $\frac{x}{-2} = 7$

CHECK:

d) $\frac{b}{3} = -4$

CHECK:

e) $3m = 2.7$

CHECK:

f) $\frac{n}{2} = 1.2$

CHECK:

g) $2x + 1 = -5$

CHECK:

h) $3y - 2 = -5$

CHECK:

10. *Solve each problem.*

a) One sixth of Canada's planetariums are in Winnipeg. There are 2 in Winnipeg. How many planetariums are there in Canada?

Let c = number of planetariums in _____.

$\frac{c}{6} = \square$

Solve:

CHECK:

Sentence: _____

b) Pietr has CDs and tapes. Twice the number of CDs plus twelve is equal to the number of tapes. He has 42 tapes. How many CDs does Pietr have?

Let c = number of _____ .

$2c + \square = \_\_\_\_\_$

Solve:

CHECK:

Sentence: _____

c) Multiplying John's age by 3 is equal to 18. What is John's age?

Let j = _____ .

Equation:

CHECK:

d) Tamara's mass is 8 kg more than three times Justin's mass. Tamara's mass is 68 kg. Solve the equation $3j + 8 = 68$ to find Justin's mass.

CHECK:

e) Subtracting 3 m from the length of a rectangle equals the width. If the width of the rectangle is 12 m, what is the length?

Let l = _____ .

CHECK:

Chapter Check

1. *Write each equation in words.*

   a) $y + 2 = 7$ → **A number increased by ☐ is seven.**

   b) $2m = 16$ → _____

   c) $2x + 1 = 5$ → _____

   _____

2. *Write an equation for each sentence.*

   a) A number plus eight is fifteen. → $n + ☐ = ☐$.

   b) Twice a number is twelve. → _____

   c) Five less than three times a number is one. → _____

3. *Draw models of algebra tiles to show each equation.*

Example:

$2x - 4 = 3$

a) $x - 5 = 1$ b) $3x + 2 = 5$ c) $2x - 3 = 7$

4. *Solve and check.*

a) $x + 5 = 13$

Add −5 to both sides. → $x + 5 = 13$

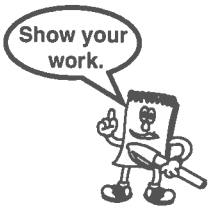
$-5 = -5$

$x =$ ____

CHECK:

L.S. = $x + 5$ R.S. = 13

$= ☐ + 5$



b) $y - 8 = 6$

Add 8.

CHECK:

c) $3x = 15$

Divide by 3.

CHECK:

d) $\frac{x}{4} = 3$

Multiply by 4.

CHECK:

e) $\frac{x}{2} = -4$

CHECK:

f) $5x = 1.5$

CHECK:

g) $y - 2 = -6$

CHECK:

h) $2x + 3 = 11$

Add −3.

$2x + 3 = 11$

$\underline{\quad -3 = -3 \quad}$

$2x = \_\_\_\_$

Divide by 2.

$\frac{2x}{\square} = \frac{\_\_\_\_}{\square}$

$x = \_\_\_\_$

CHECK:

i) $5x + 6 = 6$

CHECK:

5. *Simplify.*

Join like terms.

Examples:

1. $3y - y + 4y = 6y$

2. $5b - 2 + 2b + 3$
$= 5b + 2b - 2 + 3$
$= 7b + 1$

a) $4y + 2y - y$

$= \_\_\_\_\_$

b) $5t - 7 + 3t + 9$

$= \_\_\_\_\_$

$= \_\_\_\_\_$

6. *Expand.*

Example: $4(n - 2) = 4(n - 2)$
$= (4 \times n) - (4 \times 2)$
$= 4n - 8$

a) $3(n - 2)$

b) $5(3x - 4)$

7. The American Falls are 2 m higher than the Horseshoe Falls. The American Falls are 59 m high. What is the height of the Horseshoe Falls?

Let h = height of Horseshoe Falls.

Write an equation: $h + \square = \_\_\_\_\_$

Solve:

CHECK:

Sentence: _____

8. Joe has $2 less than Mona. Joe has $20. How much does Mona have?

Let m = _____ .

Equation:

Solve:

CHECK:

Sentence: _____

9. The number of pets Leon has is one more than twice the number Marina has. Leon has 3 pets. How many pets does Marina have?

Let m = _____ .

Equation: $\square\, m + \_\_\_\_ = \_\_\_\_$

Solve:

CHECK:

_____

10. The number of hours Jesse worked this week, multiplied by 3 and then reduced by 2, equals 28. How many hours did he work this week?

Let h = _____ .

$\square\, h - \_\_\_\_ = \_\_\_\_$

CHECK:

_____

Problem Solving: Using the Strategies

Show all your work on looseleaf!

PROBLEM SOLVING

Understand the Problem → Think of a Plan → Carry Out the Plan → Look Back

1. Two different types of flowers are growing in a greenhouse. One type of flower is 12 cm tall and is growing at 1 cm/day. The other type of flower is 8 cm tall and is growing at 2 cm/day How many days will it take for the two plants to reach the same height?

Draw a table.

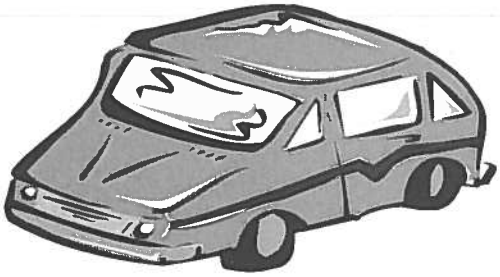
Day	Flower A (Grows 1 cm/day)	Flower B (Grows 2 cm/day)
1	12 cm	8 cm
2	13 cm	10 cm
3	14 cm	12 cm

2. At 13:00, Kia noticed her car's odometer reading was 34 629. She drove until 16:00. At 16:00, the odometer reading was 34 899.

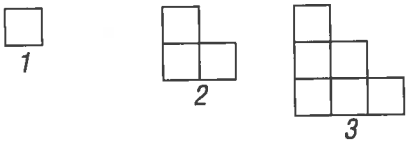
a) How far did she drive?

b) How many hours was she driving?

c) What was Kia's average speed (km/h)?



3. a) Draw the next 2 figures.



b) Copy and complete the table for the above figures.

Area → number of □
Perimeter → distance around outside of the figure

Figure	1	2	3	4	5	6	7
Area	1	3	6				
Perimeter	4	8	12				

c) Describe the patterns you see in the table.

4. There are three friends, Amanda, Brittany, and Chris. Each has a favourite sport. The sports are biking, swimming, and tennis.

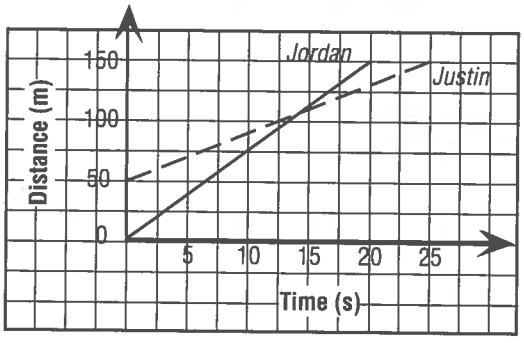
Use the following clues to decide each person's favourite sport.

- Amanda and Brittany do not need a racquet for their sports.
- Amanda cannot ride a bicycle.

Hint: Copy and complete the chart.

Sport	Amanda	Brittany	Chris
Biking			
Swimming			
Tennis	✘	✘	✓

5. The graph describes a pushcart race between Jordan and Justin.



a) How far did Jordan go?
b) Did they start at the same place?
c) How far did Justin go?
d) Who went the longest distance?
e) How long did the race take Justin?
f) How long did the race take Jordan?
g) Who won the race?
h) The lines cross. What does this show?

DATA BANK

Use the Data Bank on pages 368 to 369 of your MATHPOWER™ student text.

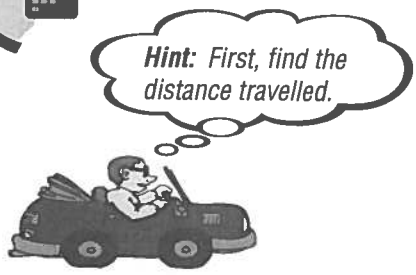
1. a) List the average precipitation for January for each provincial capital.

Victoria	**140 mm**		
Edmonton			
Regina			
Winnipeg			

b) What provincial capital is the wettest in January? _____

2. A car uses fuel at a rate of 16 km/L. How much fuel is needed to travel from Calgary to Vancouver? *Round your answer to the nearest litre.*

Use the Data Bank on page 363 of your MATHPOWER™ student text.



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