

Algebra 1 Mid-Chapter 3 Review

Name _____

Date _____

Instructions:

- For all equations - Solve. Clearly show ALL steps. Check.

LESSON 3.1 Practice C

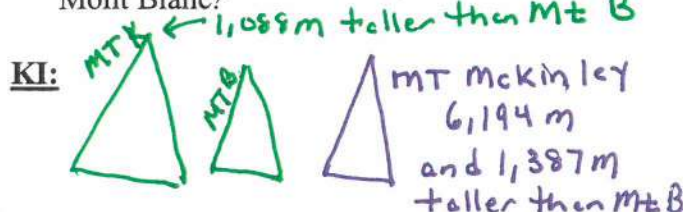
4) $y + 10.5 = -9.4$
 $-10.5 \quad -10.5$
 $\hline y = -19.9$
 C: $-19.9 + 10.5 = -9.4$
 $-9.4 = -9.4 \checkmark$

6) $m + 6.25 = 3.5$
 $-6.25 \quad -6.25$
 $\hline m = -2.75$
 C: $-2.75 + 6.25 = 3.5$
 $3.5 = 3.5 \checkmark$

13) $-\frac{y}{4} = (-23) \cdot -4$
 $y = 92$
 C: $\frac{92}{-4} = -23$
 $-23 = -23 \checkmark$

14) $\left(\frac{3}{2}\right) \frac{2}{3} N = -\frac{8}{3} \left(\frac{3}{2}\right)$
 $N = -4$
 C: $\frac{2}{3} \cdot -4 = -\frac{8}{3}$
 $-\frac{8}{3} = -\frac{8}{3} \checkmark$

21) **Tallest Mountains** Mount Kilimanjaro, the tallest mountain in Africa, is 1088 meters taller than Mont Blanc, the tallest mountain in Europe. Mount McKinley is the highest point in North America at 6194 meters. Mount McKinley is 1387 meters taller than Mont Blanc. How tall are Mount Kilimanjaro and Mont Blanc?



Explain how you got your answers.

$mt \text{ Blanc} = 6194 - 1387 = 4,807m$

$mt \text{ Kilimanjaro} = 4807 + 1088 = 5,895m$

22) **Car Wash** You are working at a car wash to raise money for a charity. By the end of the day, you raised \$342. You charged \$6 for each car wash. How many cars were washed during the day?

KI: \$6/car
Need \$342

Define a variable: $x = \# \text{ of cars}$

Write an equation:
 $6x = 342$
 $\hline x = 57$

Answer in a sentence:

They washed 57 cars.

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LESSON 3.2 Practice B

1) $3n + 14 = 35$

$$\begin{array}{r} 3n + 14 = 35 \\ -14 \quad -14 \\ \hline 3n = 21 \\ \frac{3n}{3} = \frac{21}{3} \end{array}$$

$n = 7$

C: $3(7) + 14 = 35$
 $21 + 14 = 35$
 $35 = 35 \checkmark$

9) $\frac{z}{3} - 8 = -4$

$$\begin{array}{r} \frac{z}{3} - 8 = -4 \\ +8 \quad +8 \\ \hline 3\left(\frac{z}{3}\right) = (4) \cdot 3 \end{array}$$

$z = 12$

C: $\frac{12}{3} - 8 = -4$
 $4 - 8 = -4$
 $-4 = -4 \checkmark$

LESSON 3.3 Practice A

Check whether the given number is a solution of the equation.

1) $6x + 1 - 5x = 7$; 2

$$\begin{array}{l} 6(2) + 1 - 5(2) = 7 \\ 12 + 1 - 10 = 7 \\ 3 \neq 7 \end{array}$$

2 is NOT
A solution

3) $\frac{1}{2}(8x - 6) = 1$; 1

$$\begin{array}{l} \frac{1}{2}(8(1) - 6) = 1 \\ \frac{1}{2}(2) = 1 \\ 1 = 1 \checkmark \end{array}$$

1 is a
solution

More equations.

10) $3a + 2a + 7 = 12$

$$\begin{array}{r} 5a + 7 = 12 \\ -7 \quad -7 \\ \hline 5a = 5 \\ \frac{5a}{5} = \frac{5}{5} \end{array}$$

$a = 1$

C: $3(1) + 2(1) + 7 = 12$
 $3 + 2 + 7 = 12$
 $12 = 12 \checkmark$

17) $6w + 5(w - 2) = 23$

$$\begin{array}{l} 6w + 5w - 10 = 23 \\ 11w - 10 = 23 \\ +10 \quad +10 \\ \hline 11w = 33 \end{array}$$

$$\frac{11w}{11} = \frac{33}{11}$$

$w = 3$

C: $6(3) + 5(3 - 2) = 23$
 $18 + 5(1) = 23$
 $23 = 23 \checkmark$

18) $7 - 3(x + 2) = 4$

$$\begin{array}{l} 7 - 3x - 6 = 4 \\ -3x + 1 = 4 \\ +1 \quad -1 \\ \hline -3x = 3 \\ \frac{-3x}{-3} = \frac{3}{-3} \end{array}$$

$x = -1$

C: $7 - 3(-1 + 2) = 4$
 $7 - 3(1) = 4$
 $7 - 3 = 4$
 $4 = 4 \checkmark$

20) $\frac{1}{3}(m + 6) = 4$

$$\begin{array}{l} \frac{1}{3}m + \frac{2}{1} = 4 \\ -2 \quad -2 \\ \hline \frac{1}{3}m = 2 \end{array}$$

$$3 \cdot \frac{1}{3}m = 2 \cdot 3$$

$m = 6$

C: $\frac{1}{3}(6 + 6) = 4$
 $\frac{1}{3}(12) = 4$
 $4 = 4 \checkmark$

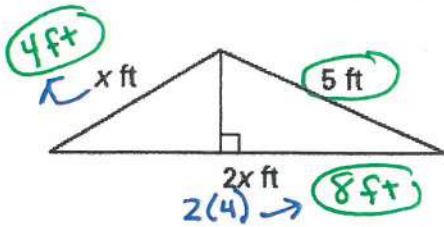
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LESSON 3.3 Practice A (continued)

Find the length of each side of the triangle or rectangle. Write an equation!!!! Show your work!

22) Perimeter = 17 feet

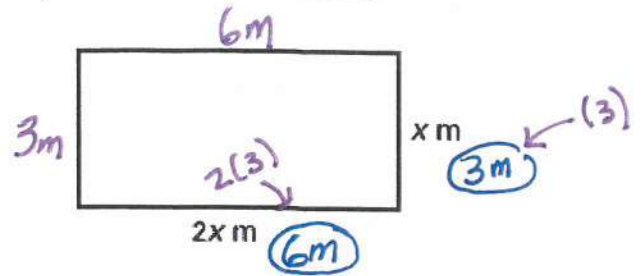
$$C: 4 + 5 + 8 = 17 \\ 17 = 17 \checkmark$$



$$EQ: x + 2x + 5 = 17$$

$$\begin{array}{r} 3x + 5 = 17 \\ -5 \quad -5 \\ \hline 3x = 12 \\ \frac{3x}{3} = \frac{12}{3} \quad \boxed{x = 4} \end{array}$$

23) Perimeter = 18 meters



$$EQ: 2(2x) + 2(x) = 18$$

$$\begin{array}{r} 4x + 2x = 18 \\ 6x = 18 \\ \frac{6x}{6} = \frac{18}{6} \quad \boxed{x = 3} \end{array}$$

LESSON 3.4 Practice B

8) $4(w + 3) = w - 15$

$$\begin{array}{r} 4w + 12 = w - 15 \\ -w \quad -w \\ \hline 3w + 12 = -15 \\ -12 \quad -12 \\ \hline 3w = -27 \\ \frac{3w}{3} = \frac{-27}{3} \quad \boxed{w = -9} \end{array}$$

$$C: 4(-9 + 3) = -9 - 15 \\ 4(-6) = -24 \\ -24 = -24 \checkmark$$

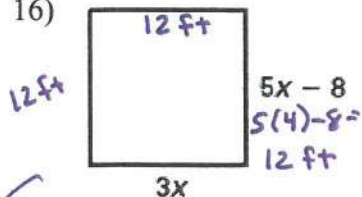
11) $7 + x = \frac{1}{2}(4x - 2)$

$$\begin{array}{r} x + 7 = 2x - 1 \\ -x \quad -x \\ \hline 7 = x - 1 \\ +1 \quad +1 \\ \hline \boxed{x = 8} \end{array}$$

$$C: 7 + 8 = \frac{1}{2}(4 \cdot 8 - 2) \\ 15 = \frac{1}{2}(30) \\ 15 = 15 \checkmark$$

Find the perimeter of the square. Write an equation!!!! Show your work! Units are in feet.

16)



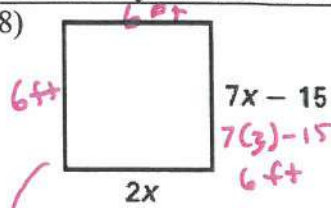
$$3 \cdot 4 = 12 \text{ ft}$$

$$P = 12 \cdot 4 = 48$$

$$\begin{array}{r} 5x - 8 = 3x \\ -3x \quad -3x \\ \hline 2x - 8 = 0 \\ +8 \quad +8 \\ \hline 2x = 8 \\ \frac{2x}{2} = \frac{8}{2} \\ \boxed{x = 4} \end{array}$$

Perimeter 48 ft

18)



$$2 \cdot 3 = 6 \text{ ft}$$

$$P = 6 \cdot 4 = 24$$

$$\begin{array}{r} 7x - 15 = 2x \\ +15 \quad +15 \\ \hline 7x = 2x + 15 \\ -2x \quad -2x \\ \hline 5x = 15 \\ \frac{5x}{5} = \frac{15}{5} \\ \boxed{x = 3} \end{array}$$

Perimeter is 24 ft

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LESSON 3.4 Practice B (continued)

- 19) **Saving and Spending** Currently, you have \$80 and your sister has \$145. You decide to save \$6 of your allowance each week, while your sister decides to spend ~~her whole allowance~~ plus \$7 each week. How long will it be before you have as much money as your sister?

KI:

You
\$80
Weekly save \$6

Sister
\$145
Weekly spend \$7 until she has no money

Define a variable:

→ $X = \text{Number of weeks}$

Write an equation:

EQ: $80 + 6x = 145 - 7x$
 $+7x \quad +7x$

$80 + 13x = 145$
 $-80 \quad -80$

$13x = 65$
 $\frac{13x}{13} = \frac{65}{13}$ $X = 5$

→ amount of money
 $C: 80 + 6(5) = 145 - 7(5)$
 $\$110 = \$110 \checkmark$

Answer in a sentence:

After 5 weeks you and your sister will have the same amount of money (\$110).

LESSON 3.4 Practice C

17) $\frac{1}{3}(6x + 3) = 2x - 5$
 $2x + 1 = 2x - 5$
 $-2x \quad -2x$

$1 = -5$

$X = \text{NO SOLUTION}$

32) $2(x - 4) + 2x = \frac{1}{2}(8x - 16)$

$2x - 8 + 2x = 4x - 8$

$4x - 8 = 4x - 8$
 $-4x \quad -4x$

$-8 = -8 \checkmark$

$X = \text{ALL REAL NUMBERS}$

33) $2(8x - 4) + 20 = 3(5x + 4)$
 $16x - 8 + 20 = 15x + 12$
 $16x + 12 = 15x + 12$
 $-15x \quad -15x$

$x + 12 = 12$
 $-12 \quad -12$

$X = 0$

C: $2[8(0) - 4] + 20 = 3[5(0) + 4]$

$2(-4) + 20 = 3(4)$
 $12 = 12 \checkmark$