### Algebra 1 Mid-Chapter 3 Review

**Instructions:**
- For all equations - Solve. Clearly show ALL steps. Check.

**LESSON 3.1 Practice C**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Equation</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>4)</td>
<td>$y + 10.5 = -9.4$</td>
<td>$y = -19.9$</td>
</tr>
<tr>
<td>6)</td>
<td>$m + 6.25 = 3.5$</td>
<td>$m = -2.75$</td>
</tr>
<tr>
<td>13)</td>
<td>$-\frac{y}{4} = -23$</td>
<td>$y = 92$</td>
</tr>
<tr>
<td>14)</td>
<td>$\left(\frac{3}{2}\right)^2 \cdot \frac{N}{3} = \frac{\frac{3}{2} \cdot 8}{3}$</td>
<td>$N = -4$, $C = \frac{2}{3} \cdot \frac{-4}{1} = \frac{-8}{3}$, $-\frac{8}{3} = -2\frac{2}{3}$</td>
</tr>
</tbody>
</table>

**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?

**Kl:**

- Mount Kilimanjaro: $6194 + 1088 = 7282$ meters
- Mount McKinley: $6194 + 1387 = 7581$ meters

**Kl:**

- Kilimanjaro is 1088 m taller than Mont Blanc.
- McKinley is 1387 m taller than Mont Blanc.

**Explain how you got your answers.**

- $M + B = 6194 - 1387 = 4807$ m
- $K = 4807 + 1088 = 5895$ m

**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?

**Kl:**

- $6/car
- Need $342

**Define a variable:**

$x = \# of cars$

**Write an equation:**

\[
\frac{6x}{6} = \frac{342}{6}
\]

**Answer in a sentence:**

They washed 57 cars.
LESSON 3.2 Practice B

1) \(3n + 14 = 35\)  
2) \(\frac{z}{3} - 8 = -4\)  

\(n = 7\)  \(z = 12\)

LESSON 3.3 Practice A

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

1) \(6x + 1 - 5x = 7; \quad 2\)  
2) \(\frac{21}{2} (8x - 6) = 1; \quad 1\)

\(6(x) + 1 - 5(x) = 7\)  
\(12 + 1 - 10 = 7\)  
\(3 \neq 7\)  

2 is not a solution

\(\frac{1}{2} (8(1) - 6) = 1\)  
\(\frac{1}{2} (2) = 1\)  
\(1 = 1\)  

1 is a solution

More equations.

10) \(3a + 2a + 7 = 12\)  
11) \(5m + 3 = 1\)

\(A = 1\)

17) \(6w + 5(w - 2) = 23\)  
18) \(7 - 3(x + 2) = 4\)

\(w = 3\)  
\(x = -1\)

20) \(\frac{1}{3} (m + 6) = 4\)  
\(\frac{1}{3} m + \frac{6}{3} = 4\)  
\(\frac{1}{3} m + 2 = 4\)  
\(-\frac{2}{3} m = 2\)  
\(m = 6\)

\(C: \frac{1}{3} (6 + 6) = 4\)  
\(\frac{1}{3} (12) = 4\)  
\(4 = 4\)  
\(m = 6\)
Algebra 1 Mid-Chapter 3 Review

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

\[ C: 4 + 5 + 8 = 17 \]
\[ 17 = 17 \]
\[ 2x + 4 \rightarrow 8 \text{ ft} \]

EQ: \[ x + 2x + 5 = 17 \]
\[ 3x + 5 = 17 \]
\[ -5 \]
\[ 3x = 12 \]
\[ \frac{3x}{3} = \frac{12}{3} \]
\[ x = 4 \]

23) Perimeter = 18 meters

EQ: \[ 2(2x) + 2(x) = 18 \]

LESSON 3.4 Practice B

8) \[ 4(w + 3) = w - 15 \]

\[ w = -9 \]

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

\[ x = 8 \]

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

16) \[ 12 \text{ ft} \]

\[ 5x - 8 = 3x \]
\[ -8 \]
\[ -3x \]
\[ 2x - 8 = 0 \]
\[ +8 \]
\[ +8 \]
\[ 2x = 8 \]
\[ 2 \]
\[ x = 4 \]

\[ P = 12 \cdot 4 = 48 \text{ ft} \]

Perimeter 48 ft

18) \[ 7x - 15 \]

\[ 7(3) - 15 \]
\[ 64 + \]
\[ 2 \cdot 3 = 64 \]
\[ 4 \]
\[ 7x - 15 = 2x + 15 \]
\[ +15 \]
\[ +15 \]
\[ 7x = 2x + 15 \]
\[ -2x \]
\[ -2x \]
\[ 5x = 15 \]
\[ \frac{15}{5} \]
\[ x = 3 \]

Perimeter is 24 ft+
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?

**K1:**

You
$80
Weekly save $6

Sister
$145
Weekly spend $7

She has no money

**Define a variable:**

\[ x = \text{number of weeks} \]

**Write an equation:**

\[
\begin{align*}
\text{EQ: } 80 + 6x &= 145 - 7x + 7x \\
\end{align*}
\]

\[
\begin{align*}
80 + 13x &= 145 \\
13x &= 65 \\
x &= 5
\end{align*}
\]

**Answer in a sentence:**

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

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LESSON 3.4 Practice C

17) \[
\begin{align*}
\frac{1}{3}(6x + 3) &= 2x - 5 \\
2x + 1 &= 2x - 5 \\
-2x &= -7 \\
x &= 5
\end{align*}
\]

\[x = \text{NO SOLUTION}\]

32) \[
\begin{align*}
2(x - 4) + 2x &= \frac{1}{2}(8x - 16) \\
2x - 8 + 2x &= 4x - 8 \\
4x - 8 &= 4x - 8 \\
-4x &= -8 \\
-8 &= -8
\end{align*}
\]

\[x = \text{ALL REAL NUMBERS}\]

33) \[
\begin{align*}
2(8x - 4) + 20 &= 3(5x + 4) \\
16x - 8 + 20 &= 15x + 12 \\
16x + 12 &= 15x + 12 \\
-15x &= -15 \\
x &= 0
\end{align*}
\]

\[x = 0\]