

Good morning!!

We will have a homework quiz after we review HW.
Check your HW!

Pg 17
(EVEN)

2. A larger number is twelve more than a smaller. Their sum is 84. Find the numbers.

$$\begin{aligned} \text{Let } x &= \text{smaller} = 36 \\ \text{Let } x + 12 &= \text{larger} = 48 \\ \hline 2x + 12 &= 84 \\ -12 &-12 \\ \hline 2x &= 72 \\ x &= 36 \end{aligned} \quad \boxed{\{36, 48\}}$$

4. The second number is five more than twice a first. Their sum is 80. Find the numbers.

$$\begin{aligned} \text{Let } x &= \text{first} = 25 \\ \text{Let } 2x + 5 &= \text{second} = 55 \\ \hline 3x + 5 &= 80 \\ -5 &-5 \\ \hline 3x &= 75 \\ x &= 25 \end{aligned} \quad \boxed{\{25, 55\}}$$

6. A first number is four more than seven times a second. The sum of the numbers is 92. Find the numbers.

$$\begin{aligned} \text{Let } x &= \text{second} = 11 \\ \text{Let } 7x + 4 &= \text{first} = 81 \\ \hline 8x + 4 &= 92 \\ -4 &-4 \\ \hline 8x &= 88 \\ x &= 11 \end{aligned} \quad \boxed{\{81, 11\}}$$

8. Grandma's age is four less than six times Little Patty's age. If the sum of their ages is 80, how old is each?

$$\begin{aligned} \text{Let } x &= \text{Patty's age} = 12 \\ \text{Let } 6x - 4 &= \text{Grandma's} = 68 \\ \hline 7x - 4 &= 80 \\ +4 &+4 \\ \hline 7x &= 84 \\ x &= 12 \end{aligned} \quad \boxed{\{12, 68\}}$$

10. An 80 meter cable is cut so that one piece is two meters less than three times the other. How long is each piece?

$$\begin{aligned} \text{Let } x &= \text{other piece} \\ \text{Let } 3x - 2 &= \text{first piece} \\ \hline 4x - 2 &= 80 \\ +2 &+2 \\ \hline 4x &= 82 \\ x &= 20.5 \end{aligned} \quad \boxed{\{8, 22\}}$$

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HW Page 18 (ODDS)

1. A rectangle has a length two more than seven times the width. If the perimeter is 52 units, find the width and length.

$$\begin{array}{l} \text{Let } x = \text{width} = 3 \\ \text{Let } 7x+2 = \text{length} \\ \begin{array}{r} 7x+2 \\ 7x+2 \\ \hline 16x+4 = 52 \\ -4 \\ \hline 16x = 48 \\ \div 16 \\ \hline x = 3 \end{array} \end{array}$$

$w = 3$
 $L = 23$

3. A rectangle has a length six less than three times the width. If the perimeter is 28 units, find the width and length.

$$\begin{array}{l} \text{Let } x = \text{width} = 5 \\ \text{Let } 3x-6 = \text{length} = 9 \\ \begin{array}{r} 3x-6 \\ 3x-6 \\ \hline 8x-12 = 28 \\ +12 \\ \hline 8x = 40 \\ \div 8 \\ \hline x = 5 \end{array} \end{array}$$

$w = 5$
 $L = 9$

5. A rectangle has a width one less than the length. If the perimeter is 30 units, find the width and length.

$$\begin{array}{l} \text{Let } x = \text{length} = 8 \\ \text{Let } x-1 = \text{width} = 7 \\ \begin{array}{r} x-1 \\ x-1 \\ \hline 4x-2 = 30 \\ +2 \\ \hline 4x = 32 \\ \div 4 \\ \hline x = 8 \end{array} \end{array}$$

$w = 7$
 $L = 8$

7. A rectangle has a length one less than three times the width. If the perimeter is 46 units, find the width and length.

$$\begin{array}{l} \text{Let } x = \text{width} = 6 \\ \text{Let } 3x-1 = \text{length} = 17 \\ \begin{array}{r} 3x-1 \\ 3x-1 \\ \hline 8x-2 = 46 \\ +2 \\ \hline 8x = 48 \\ \div 8 \\ \hline x = 6 \end{array} \end{array}$$

$w = 6$
 $L = 17$

9. A rectangle has a length four more than five times the width. If the perimeter is 32 units, find the width and length.

$$\begin{array}{l} \text{Let } x = \text{width} = 2 \\ \text{Let } 5x+4 = \text{length} = 14 \\ \begin{array}{r} 5x+4 \\ 5x+4 \\ \hline 12x+8 = 32 \\ -8 \\ \hline 12x = 24 \\ \div 12 \\ \hline x = 2 \end{array} \end{array}$$

$w = 2$
 $L = 14$

Good morning!

Algebra 1 - WH

name _____

Warmup

Is it Really This Easy?

- Write down any 4 numbers. $7, 13.2, \pi/3, e^{-2}$
- Write down any pair of consecutive integers. $1, 2$ $4, 5$
 $601, 602$
- Write down any pair of consecutive even integers. $2, 4$ $4, 6$ $17802, 17804$
- Write down any four consecutive odd integers. $3, 5, 7, 9$
- Write an equation to find three consecutive integers whose sum is 147.

~~1, 2, 3~~~~9, 10, 11~~~~50, 51, 52~~

1st : x

2nd : $x+1$

3rd : $x+2$

$$\underline{x} + \underline{x+1} + \underline{x+2} = 147$$

$$3x + 3 = 147$$

$$3x = 144$$

$$x = 48$$

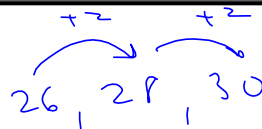
$$\{48, 49, 50\}$$

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Consecutive Integers Word Problems

Examples:

Translate to an algebraic equation and solve:



- a. The sum of three consecutive integers is 147. Find the integers.



- b. The sum of three consecutive even integers is 84. Find the integers.

$$\begin{array}{l}
 1^{\text{st}}: x \\
 2^{\text{nd}}: x+2 \\
 3^{\text{rd}}: x+4 \\
 \hline
 3x + 6 = 84
 \end{array}
 \quad
 \begin{array}{l}
 3x = 78 \\
 x = 26 \\
 \{26, 28, 30\}
 \end{array}$$

- b. The sum of three consecutive odd integers is 39. Find the integers.

$$\begin{array}{l}
 1^{\text{st}}: x \\
 2^{\text{nd}}: x+2 \\
 3^{\text{rd}}: x+4 \\
 \hline
 3x + 6 = 39 \\
 3x = 33 \\
 x = 11 \\
 \{11, 13, 15\}
 \end{array}$$

- d. The sum of five consecutive integers is -120. Find the integers.



$$\begin{array}{l}
 \underline{x} + \underline{x+1} + \underline{x+2} + \underline{x+3} + \underline{x+4} = -120 \\
 5x + 10 = -120 \\
 5x = -130 \\
 x = -26 \\
 \{-26, -25, -24, -23, -22\}
 \end{array}$$

✓ Understanding Check

Translate to an algebraic equation and solve:

- a. The sum of three consecutive integers is 39. Find the integers.

$$\begin{array}{r}
 x \\
 x+1 \\
 x+2 \\
 \hline
 3x+3=39 \\
 3x=36 \\
 x=12
 \end{array}
 \quad \{12, 13, 14\}$$

$3, 4, 5$

- c. The sum of three consecutive odd integers is -27. Find the integers.

- b. The sum of three consecutive even integers is 312. Find the integers.

$$\begin{array}{r}
 1^{st}: x \\
 2^{nd}: x+2 \\
 3^{rd}: x+4 \\
 \hline
 3x+6=312 \\
 3x=306 \\
 x=102
 \end{array}
 \quad \{102, 104, 106\}$$

$2, 4, 6$

- d. The sum of seven consecutive integers is 35. Find the integers.

- a. { 12, 13, 14}
- b. { 102, 104, 106}
- c. { -11, -9, -7}
- d. { 2, 3, 4, 5, 6, 7, 8}