

Warm Up

January 30, 2019

1.) Write and solve the equations that models the scenario below:

Mr. Jones said "Five less than one fourth my age is 12. How old am I?"
 $X = \text{MR. Jones age}$

$$\begin{aligned} \frac{1}{4}X - 5 &= 12 & X &= 68 \\ +5 & +5 & & \\ \hline \frac{1}{4}X &= 17 & & \end{aligned}$$

2.) The larger of two numbers is four more than the smaller number. If the sum of the numbers is 74, find the numbers.

$$\begin{aligned} X &= \text{smaller \#} \\ X + 4 &= \text{larger \#} \end{aligned}$$

$$\begin{aligned} X + (X + 4) &= 74 \\ 2X + 4 &= 74 \\ -4 & -4 \\ \hline 2X &= 70 \\ \frac{2X}{2} &= \frac{70}{2} \end{aligned}$$

$X = 35$
 $X + 4 = 39$

Finding Two Numbers

1. The larger of two numbers is four more than the smaller number. If the sum of the numbers is 74, find the numbers.

$$X = 35$$

$$X + 4 = 39$$

-5

2 · X

+

2. The larger of two numbers is six less than twice the smaller number. If the sum of the numbers is 42, find the numbers

$$X = \text{smaller \#}$$

$$2X - 6 = \text{larger \#}$$

$$X + (2X - 6) = 42$$

$$3X - 6 = 42$$

$$\begin{array}{r} +6 \quad +6 \\ \hline 3X = 48 \end{array}$$

$$X = 16$$

$$2(16) - 6$$

$$2X - 6 = 26$$

3. The larger of two numbers is seven less than three times the smaller number. If the sum of the numbers is 61, find the numbers.

$$X = \text{smaller \#}$$

$$3X - 7 = \text{larger \#}$$

$$X + (3X - 7) = 61$$

$$4X - 7 = 61$$

$$4X = 68$$

$$X = 17$$

$$3X - 7 = 44$$

4. The larger of two numbers is one more than four times the smaller number. If the sum of the numbers is 106, find the numbers.

$$X = \text{smaller \#}$$

$$4X + 1 = \text{larger \#}$$

$$X + (4X + 1) = 106$$

$$5X + 1 = 106$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 5X = 105 \\ \hline 5 \quad 5 \end{array}$$

$$X = 21$$

$$4X + 1 = 85$$

$P = 2L + 2W$ type 2: Perimeter of Rectangles

5. The length of a rectangle is six inches more than its width. If the perimeter of the rectangle is 24 inches, find its dimensions.

L
 $W+6$
 W $P=24$ W
 $W+6$
 $W+6+W+W+6+W=24$
 $4W+12=24$
 $4W=12$
 $W=3$
 $L=W+6$
 $L=9 \text{ in}$
 $W=3 \text{ in}$

6. The length of a rectangle is five inches more than four times its width. If the perimeter of the rectangle is 90 inches, find its dimensions.

$4W+5$
 W $P=90$ W
 $4W+5$
 $10W+10=90$
 $\begin{array}{r} 10W+10=90 \\ -10 \quad -10 \\ \hline 10W=80 \\ \frac{10}{10} \quad \frac{80}{10} \\ \hline W=8 \end{array}$
 $W=8$
 $L=4W+5$
 $L=4(8)+5$
 $L=37$
 $L=37 \text{ in}$
 $W=8 \text{ in}$
 → add 4 sides

7. The length of a rectangle is three centimeters less than twice its width. If the perimeter of the rectangle is 18 centimeters, find its dimensions.

$2W-3$
 W $P=18$ W
 $2W-3$
 $2W-3+W+2W-3+W=18$
 OR
 $2(2W-3)+2(W)=18$
 $4W-6=18$
 $\begin{array}{r} 4W-6=18 \\ +6 \quad +6 \\ \hline 4W=24 \\ \frac{4}{4} \quad \frac{24}{4} \\ \hline W=6 \end{array}$
 $L=2W-3$
 $=2(6)-3$
 $L=12-3$
 $L=9$
 $W=4 \text{ cm}$
 $L=5 \text{ cm}$

type 3: Finding Consecutive Numbers

one after the other

- What does consecutive mean? _____
- Give examples of the following:

consecutive numbers	22, 23, 24, 25, ... $n, n+1, n+2, n+3, \dots$
consecutive <u>even</u> numbers	2, 4, 6, 8, ... $n, n+2, n+4, n+6, \dots$
consecutive <u>odd</u> numbers	1, 3, 5, 7, ... $n, n+2, n+4, n+6, \dots$

10. The $\overset{+}{\square}$ sum of two \square consecutive numbers is $\overset{=}{\square}$ 123. Find the numbers.

$$n = 1^{\text{st}} \#$$

$$n+1 = 2^{\text{nd}} \#$$

$$n + (n+1) = 123$$

$$2n+1 = 123$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 2n = 122 \end{array}$$

$$n = 61$$

$$n+1 = 62$$

11. The $\overset{+}{\square}$ sum of two \square consecutive numbers is 85, find the numbers.

$$n = 1^{\text{st}} \#$$

$$n+1 = 2^{\text{nd}} \#$$

$$n + (n+1) = 85$$

$$2n+1 = 85$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 2n = 84 \end{array}$$

$$n = 42$$

$$n+1 = 43$$

12. Find two consecutive **even** numbers whose **sum** is 54.

$$n = 1^{\text{st}} \#$$
$$n+2 = 2^{\text{nd}} \#$$

$$n + (n+2) = 54$$
$$\begin{array}{r} 2n+2 = 54 \\ -2 \quad -2 \\ \hline 2n = 52 \end{array}$$

$$n = 26$$
$$n+2 = 28$$

13. The sum of two consecutive **odd** numbers is 128. Find the numbers.

$$n = 1^{\text{st}} \#$$
$$n+2 = 2^{\text{nd}} \#$$

$$n + (n+2) = 128$$
$$\begin{array}{r} 2n+2 = 128 \\ -2 \quad -2 \\ \hline 2n = 126 \\ \hline n = 63 \end{array}$$

$$n = 63$$
$$n+2 = 65$$

14. The ⁺sum of three consecutive even numbers is 138. Find the numbers.

$$\begin{aligned}n + (n+2) + (n+4) &= 138 \\3n + 6 &= 138 \\-6 \quad -6 & \\ \hline 3n &= 132\end{aligned}$$

$$\begin{aligned}n &= 44 \\n+2 &= 46 \\n+4 &= 48\end{aligned}$$

15. The sum of three consecutive odd numbers is 57. What are the three numbers?

$$\begin{aligned}n + (n+2) + (n+4) &= 57 \\3n + 6 &= 57 \\-6 \quad -6 & \\ \hline 3n &= 51\end{aligned}$$

$$\begin{aligned}n &= 17 \\n+2 &= 19 \\n+4 &= 21\end{aligned}$$

MR. WILKS' CHALLENGE!



In cross-country, the team score is determined by the place each individual runner finishes. (For example 1st place is one point, 16th place is 16 points, etc.) In their latest meet, Mr. Wilks' team scored 55 points. If there were five runners on the team and each runner finished one after another, what places did they each come in?

