

Warm Up

Grade 9



Write an equation that relates the number of circles, c , to the figure number, f when given the following data.

f Figure #	c # Circles
1	9
2	13
3	17
4	21

$y = 4x + 5$
 $C = 4f + 5$ ← equation
 $\rightarrow 4f + 5$
 Expression

For $n = 3$, solve for each of the following

1) $K = 4n - 1$

2) $W = 10n - 5$

$$\begin{aligned}
 K &= 4(3) - 1 \\
 &= 12 - 1 \\
 &= 11
 \end{aligned}$$

$$\begin{aligned}
 W &= 10(3) - 5 \\
 W &= 30 - 5 \\
 W &= 25
 \end{aligned}$$

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Figure #	# Circles
<u>1</u>	<u>9</u>
<u>2</u>	<u>13</u>
<u>3</u> × 4	<u>17</u>
<u>4</u>	<u>21</u>

$$c = 4f + 5$$

For $n = 3$, solve for each of the following

$$1) K = 4n - 1$$

$$K = 4(3) - 1$$

$$K = 12 - 1$$

$$K = 11$$

$$2) W = 10n - 5$$

$$W = 10(3) - 5$$

$$W = 30 - 5$$

$$W = 25$$

A large water tower holds 15000 liters of water, however during the winter the water tower was damaged and started to leak. This table shows the amount of water every hour after it sprung the leak. The level of water changes at a constant rate.



Time (t hours)	Amount (A Liters)
0	15 000
1	14 800
2	14 600
3	14 400
4	14 200

Handwritten annotations: A blue 'x' is above the first column, and a blue 'y' is above the second column. A blue arrow points from the 15000 value to the 14800 value, labeled '-200'. Another blue arrow points from the 14800 value to the 14600 value, also labeled '-200'. A vertical blue dashed line is to the right of the 14600 and 14400 values, with a blue arrow pointing from the 14400 value to this line.

i) Write an expression for the amount in terms of the time since the water tower began to leak.

$$-200t + 15000$$

ii) Write an equation that relates the amount of water to the time since it started leaking.

$$y = -200x + 15000$$

$$A = -200t + 15000$$

$$A = -200t + 15000$$

$A = \#$ of litres
 $t = \#$ of hours.

iii) How much water is in the water tower after 10 hours?

$$A = -200(10) + 15000$$

$$A = -2000 + 15000$$

$$A = 13000 \text{ litres.}$$

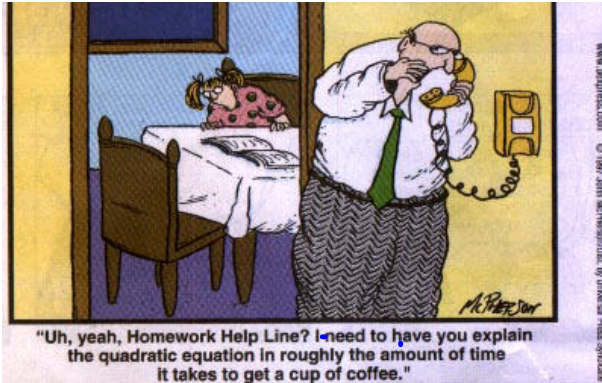
iv) When will the water tower be empty?

$$0 = -200t + 15000$$

$$-200t + 15000 = 0$$

$$\begin{array}{r} -200t = -15000 \\ \hline t = 75 \end{array}$$

$$t = 75 \text{ hours.}$$



A Math tutor charges \$15.75 for each hour and a fixed cost of \$8.00.

i) Write an equation that relates the cost to the hours hired

$$y = 15.75x + 8$$

$$C = 15.75h + 8$$

ii) How much will a tutor cost for 4 hours?

$$y = 15.75(4) + 8$$

$$y = 63 + 8$$

$$y = \$71.00$$

2

Ashley babysits on the weekend to make extra money. She charges \$15 as a flat rate and then \$5 every hour.



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$$T = 5h + 15$$

$$T = 15 + 5h$$

- 1. How much would it cost to have Ashley babysit for 3 hours?**

Class/Homework

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