

HW SOL 6.1

October 20, 2020 9:34 AM

Math 9 HW: Chapter 6.1 – Solving Equations Using Inverse Operations

1. Solve each equation by completing the arrow diagram.

<p>a) $x + 10 = 15$</p> <p>$x + 10 = 15$ $-10 \quad -10$ $x = 5$</p>	<p>b) $x - 4.8 = 2.5$</p> <p>$x - 4.8 = 2.5$ $+4.8 \quad +4.8$ $x = 7.3$</p>
<p>c) $3x = 24$</p> <p>$3x = 24$ $\frac{3x}{3} = \frac{24}{3}$ $x = 8$</p>	<p>d) $\frac{x}{4} = 5$</p> <p>$\frac{x}{4} = 5$ $x = 4 \times 5$ $x = 20$</p>
<p>e) $2x + 5 = 19$</p> <p>$2x + 5 = 19$ $-5 \quad -5$ $\frac{2x}{2} = \frac{14}{2}$ $x = 7$</p>	<p>f) $\frac{x}{3} - 2 = 5$</p> <p>$\frac{x}{3} - 2 = 5$ $+2 \quad +2$ $\frac{x}{3} = 7$ $x = 21$</p>

2. Solve each equation.

<p>a) $3.2y = 15.36$</p> <p>$y = \frac{15.36}{3.2} \Rightarrow y = 4.8$</p>	<p>b) $-2.6x = 9.88$</p> <p>$\frac{-2.6x}{-2.6} = \frac{9.88}{-2.6}$ $x = -3.8$</p>
<p>c) $\frac{m}{1.6} = 6.2$</p> <p>$m = 6.2 \times 1.6$ $m = 9.92$</p>	<p>d) $-\frac{k}{5.2} = -2.8$</p> <p>$(-5.2) \frac{k}{5.2} = -2.8(-5.2)$ $k = 14.56$</p>

IF

$(5.2) \frac{k}{5.2} = -2.8(5.2)$

Positive $k = -14.56$

<p>e) $5x - 13 = 17$ $+13 \quad +13$ $\frac{5x}{5} = \frac{30}{5}$ $x = 6$</p>	<p>f) $2.4x + 6.5 = -17.7$ $-6.5 \quad -6.5$ $2.4x = -24$ $x = -10$</p>
<p>g) $\frac{x}{5} + 9 = 12$ $-9 \quad -9$ $\frac{x}{5} = 3$ $x = 15$</p>	<p>h) $\frac{y}{3.5} - 1.2 = 2.8$ $+1.2 \quad +1.2$ $\frac{y}{3.5} = 4$ $y = 14$</p>

3. For each Statement below, write then solve an equation to determine the number.

<p>a) Four more than a number is 9. $x + 4 = 9$ $x = 5$</p>	<p>b) Three times a number is -24. $3x = -24$ $x = -8$</p>
<p>c) One-quarter of a number is 5. $\frac{x}{4} = 5$ $x = 20$</p>	<p>d) One-third of a number minus two equals -6. $\frac{x}{3} - 2 = -6$ $\frac{x}{3} = -4$ $x = -12$</p>
<p>e) Eight more than half a number is thirty. $8 + \frac{1}{2}x = 30$ $8 + \frac{1}{2}x = 30$ $\frac{1}{2}x = 22$ $x = 44$</p>	<p>f) Five less than four times a number is fifteen. $4x - 5 = 15$ $4x = 20$ $x = 5$</p>

4. Solve each equation.

<p>a) $4(x+3) = 36$ $4x + 12 = 36$ $-12 \quad -12$ $4x = 24$ $x = 6$</p>	<p>b) $-5(x-2) = 35.5$ $-5x + 10 = 35.5$ $-5x = 25.5$ $-5 \quad -5$ $x = -5.1$</p>
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<p>c) $-2.4(5-y) = 19.2$</p> <p>$-12 + 2.4y = 19.2$</p> <p>$+12 \quad +12$</p> <p>$2.4y = 31.2$</p> <p>$y = 13$</p> <p><i>300 + 12 50 + 2</i></p> <p>$\frac{31.2}{2.4} = \frac{312}{24}$</p> <p>$= \frac{52}{4}$</p>	<p>d) $5.2(-3-y) = -30$</p> <p>$-15.6 - 5.2y = -30$</p> <p>$+15.6 \quad +15.6$</p> <p>$-5.2y = -14.4$</p> <p>$y = \frac{-14.4}{-5.2} = \frac{36}{13}$</p> <p>$\frac{144}{52} = \frac{36}{13}$</p>
<p>e) $10k - 5k - 8k = -6 + 15 + 12$</p> <p>$-3k = 21$</p> <p>$k = -7$</p>	<p>f) $-38 = 5(2y-1) + y$</p> <p>$-38 = 10y - 5 + y$</p> <p>$-33 = 11y$</p> <p>$-3 = y$</p>
<p>g) $\frac{x}{2} + \frac{x}{3} = \frac{25}{6}$</p> <p>$\text{LCD: } \langle 2, 3, 6 \rangle = 6$</p> <p>$x(\frac{3}{3}) + x(\frac{2}{2}) = 6(\frac{25}{6})$</p> <p>$3x + 2x = 25$</p> <p>$5x = 25$</p> <p>$x = 5$</p>	<p>h) $\frac{2y+7}{3} = -15$</p> <p>$3(\frac{2y+7}{3}) = (-15)3$</p> <p>$2y+7 = -45$</p> <p>$2y = -52$</p> <p>$y = -26$</p>

Solve each of the following problems and show your work clearly.

5. Vancouver has three times the annual snowfall of Tokyo. Together, they have a total of 80 cm of snow a year. What is Tokyo's annual snowfall?

Tokyo $\rightarrow x$ (20 cm) $x + 3x = 80$

$4x = 80$

Vancouver $\Rightarrow 3x$ (60 cm) $x = 20$ cm

6. Two less than the triple the width of a rectangle is 13. Determine the width.

width = $w \rightarrow 3w - 2 = 13$

REASONING $3w = 15$

$w = 5$

7. One year, Alberta had 301 forest fires more than Manitoba. The total number of forest fires in these two provinces was 1596. How many forest fires did Manitoba have?

ALBERTA: $(x+301)$

MANITOBA: x

$(x+301) + x = 1596$

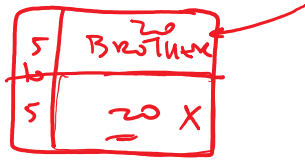
$2x + 301 = 1596$

$2x = 1295$

$x = \frac{1295}{2}$

$x = 647.5$

8. Mindy baked some cookies. She gave 10 to her sister. She then gave half of the remaining cookies to her brother and was left with 20 cookies. How many cookies did she bake?



50 cookies

$$\frac{x - 10}{2} = 20$$

9. A vending machine contains a total of 104 coins. It contains twice as many nickels as dimes and 5 times as many quarters as dimes. Determine the number of dimes in the vending machine.

DIMES: x
 NICKELS: $2x$
 QUARTERS: $5x$

$$x + 2x + 5x = 104$$

$$8x = 104$$

$$x = 13$$

10. Mr. Young ate $\frac{1}{3}$ of Mr. Chang's chocolates on Monday. Ms. Wu ate $\frac{1}{5}$ of Mr. Chang's chocolate on the same day. Together they ate 16 chocolates.

- a. How many chocolates did Mr. Chang have in beginning?

let x be the number of chocolate:

$$15\left(\frac{x}{3}\right) + 15\left(\frac{x}{5}\right) = (16)15$$

$$5x + 3x = 240$$

$$16 = 4 \times 2$$

$$16 \times 15$$

$$8 \times 2 \times 15$$

- b. How many chocolates did Mr. Chang have after Mr. Young and Ms. Wu fulfilled their craving?

$$x = 30$$

$$\text{Mr. Young} = \frac{30}{3} = 10$$

$$\text{Ms. Wu} = \frac{30}{5} = 6$$

$$\text{Mr. Chang} = 14 \text{ choco.}$$

11. John earns \$180 for a day's work. That amount is \$30 less than 3 times the money Amanda earns for a day's work. How much does Amanda earn for a 5 day week?

JOHN: \$180 / DAY.

$$\text{Amanda: } \rightarrow 3A - 30 = 180$$

$$+30 \quad +30$$

$$3A = 210$$

$$A = 70$$

$$5 \text{ Days} \rightarrow 70 \times 5$$

$$= 350 / 5 \text{ DAY WK}$$