

Factor each expression.

$45c + 10d$

$5(9c + 2d)$

$27 - 9x + 15y$

$3(9 - 3x + 5y)$

$7a + 21b + 42c$

$7(a + 3b + 6c)$

$6s + 18t + 3w$

$3(2s + 6t + w)$

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Use the Distributive Property. Simplify the answer.

$\frac{1}{4}(6x + 14y)$

$\frac{1}{2} \cdot \frac{3x}{1} + \frac{1}{2} \cdot \frac{14y}{2}$

$\frac{3x}{2} + \frac{7y}{2}$

OR

$\frac{3x + 7y}{2}$

$\frac{1}{6}(15a + 20b)$

$\frac{1}{2} \cdot \frac{5a}{1} + \frac{1}{3} \cdot \frac{10b}{1}$

$\frac{5a}{2} + \frac{10b}{3}$

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LESSON
1.2 One-Step Equations
 with Rational
 Coefficients



Solve one-step equations algebraically.

$$x + 2 = 5$$

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$$x + 2 = 5$$

$$x = 3$$

Solving Algebraically

$$\begin{array}{r} x + 2 = 5 \\ \underline{-2 \quad -2} \\ x = 3 \end{array}$$

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$x + 3.2$	=	-8.5	$-8 + -3$
-3.2		$+ -3.2$	$\equiv \equiv \equiv$
x	=	-11.7	\equiv

-11

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$x - 3 = 4$

<div style="border: 1px solid black; padding: 5px; display: inline-block; font-size: 24px; font-weight: bold;">X</div>	=	<table style="margin: 0 auto;"> <tr><td style="padding: 5px;">$+$</td><td style="padding: 5px;">$+$</td></tr> <tr><td style="padding: 5px;">$+$</td><td style="padding: 5px;">$+$</td></tr> <tr><td style="padding: 5px;">$+$</td><td style="padding: 5px;">$+$</td></tr> <tr><td style="padding: 5px;">$+$</td><td style="padding: 5px;">$+$</td></tr> </table>	$+$	$+$	$+$	$+$	$+$	$+$	$+$	$+$
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x	=	7								

Solving Algebraically

$x - 3 = 4$
$+ 3 \quad + 3$
$x = 7$

\checkmark
 $7 - 3 = 4$
 $4 = 4$

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$$\begin{array}{r|l} \frac{2}{3} + y & = 8 \\ + \frac{2}{3} & + \frac{2}{3} \\ \hline y & = 8\frac{2}{3} \end{array}$$

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$$\begin{array}{r|l} 30 & = -0.5a \\ -0.5 & -0.5 \\ \hline -60 & = a \end{array}$$

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$$\frac{9}{3.5} = 9.2 \cdot -3.5$$

$$\frac{9}{1} = -32.2$$

$$-\frac{1}{2} = \frac{1}{-2} = -\frac{1}{2}$$

Oct 22-10:45 AM

A scuba diver is exploring at an elevation of -12.2 meters. As the diver rises to the surface, she plans to stop and rest briefly at a reef that has an elevation of -4.55 meters. Find the vertical distance that the diver will travel.

STEP 1 Write an equation. Let x represent the vertical distance between her initial elevation and the elevation of the reef.

$$-12.2 + x = -4.55$$

STEP 2 Solve the equation using an inverse operation.

$$-12.2 + x = -4.55$$

$$\frac{+12.2}{x} = \frac{+12.2}{7.65} \quad \text{Add 12.2 to both sides.}$$

The diver will travel a vertical distance of 7.65 meters.

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YOUR TURN

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5. An airplane descends 1.5 miles to an elevation of 5.25 miles. Find the elevation of the plane before its descent.

$$x + (-1.5) = 5.25$$

$$\hookrightarrow x \begin{array}{r} -1.5 \\ +1.5 \\ \hline \end{array} = 5.25$$

$$x = 6.75 \text{ mi}$$

Oct 22-10:50 AM

Between the hours of 10 P.M. and 6 A.M., the temperature decreases an average of $\frac{3}{4}$ of a degree per hour. How many minutes will it take for the temperature to decrease by 5°F ?

STEP 1 Write an equation. Let x represent the number of hours it takes for the temperature to decrease by 5°F .

~~$$-\frac{3}{4}x = -5$$~~

$$x = \frac{20}{3} \text{ hrs}$$

$$-\frac{3}{4} \div -\frac{3}{4} = \frac{20}{3} \div -\frac{3}{4}$$

Convert the number of hours to minutes.

$$\frac{20}{3} \text{ hours} \times \frac{60 \text{ minutes}}{1 \text{ hour}} = 400 \text{ minutes}$$

It takes 400 minutes for the temperature to decrease by 5°F .

Oct 22-10:51 AM

HW - Worksheet**Work must be shown ALGEBRAICALLY!**

Summative quiz this Monday. Problems will come directly from worksheets assigned covering:

- Distributive Property
- Algebraic expressions
- Factoring
- 1-step equations
- 2-step equations
- Write and solve equations

Oct 22-11:03 AM