

Warm Up...

Solve each of the following:

$$\textcircled{1} \begin{cases} 3x - 2y = 13 \\ 2x - y = 1 \end{cases} \quad (-11, -23)$$

Substitution ...

$$2x - 1 = y$$

$$3x - 2(2x - 1) = 13$$

$$3x - 4x + 2 = 13$$

$$\frac{-x}{-1} = \frac{11}{-1}$$

$$x = -11$$

$$y = 2(-11) - 1$$

$$y = -23$$

$$(-11, -23)$$

$$\textcircled{2} \begin{cases} 5x + 2y = -9 \\ 2x = 3y + 4 \end{cases} \quad (-1, -2)$$

Elimination ...

$$(5x + 2y = -9) \times 2$$

$$(2x - 3y = 4) \times 5$$

$$\Rightarrow \begin{array}{r} 10x + 4y = -18 \\ 10x - 15y = 20 \end{array}$$

$$\hline$$

$$\frac{19y}{19} = \frac{-38}{19}$$

$$y = -2$$

$$2x = 3(-2) + 4$$

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

$$x = -1$$

$$(-1, -2)$$

Interest Problems

A total of \$12,000 is invested in two funds paying 9% and 11% simple interest. If the yearly interest is \$1,180, how much of the \$12,000 is invested at each rate?

$$I = Prt$$

x Rep. Amt @ 9%

y Rep Amt @ 11%

$$\begin{aligned} & \rightarrow x + y = 12000 \\ & \rightarrow 0.09x + 0.11y = 1180 \end{aligned}$$

$$0.09x + 0.09y = 1080$$

$$\frac{0.02y}{0.02} = \frac{100}{0.02}$$

$$y = \$5000$$

\$5000 @ 11%

\$7000 @ 9%

Another Example???

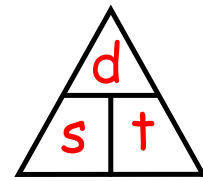
Jill had \$12 100 to invest. She put part of it into an account paying 8 % / a and the rest into an account paying 9 % / a. After one year, the total income on her investments was \$1043. How much was in each account?

$$\begin{aligned}x &\rightarrow \text{Amt. @ 8\%} \\y &\rightarrow \text{" @ 9\%}\end{aligned}$$

$$\begin{aligned}&\$4600 @ 8\% \\&\$7500 @ 9\%\end{aligned}$$

$$\begin{aligned}&\rightarrow x + y = 12100 \\&0.08x + 0.09y = 1043 \\&\underline{0.08x + 0.08y = 968} \\&0.01y = 75 \\&y = 7500 \\&x = 12100 - 7500 \\&= \$4600\end{aligned}$$

Speed/Distance/Time Problems



Two trucks leave Edmonton with one going north and the other heading south. The truck going north had a heavier load so it drove 10 km/h slower. In 8 h the trucks were 1840 km apart. Find the speeds of the trucks.

$$d = st$$

	S (km/h)	d (km)	t (h)
South	x	$8x$	8
North	y	$8y$	8

$8x$
 $8y$
 1840 km

$$y + 10 = x$$

$$8x + 8y = 1840$$

$$8(y + 10) + 8y = 1840$$

$$8y + 80 + 8y = 1840$$

$$\frac{16y}{16} = \frac{1760}{16}$$

$$y = 110$$

$$x = y + 10$$

$$x = 110 + 10$$

$$x = 120$$

$$960 \text{ km} + 880 \text{ km} = 1840 \text{ km}$$

South $\Rightarrow 120 \text{ km/h}$
 North $\Rightarrow 110 \text{ km/h}$

Attachments

Worksheet - Trig Identities #2.doc