

3.8 Warm-Up

1. Write an equation for “3 more than twice a is 24.”

$$3 + 2a = 24$$

2. A square has a side length of 8 feet. Find the area of the square using the formula $A = s^2$.

$$8^2 = 64 = A$$
$$64 \text{ ft}^2$$

3. A rectangular serving tray is 26 inches long and 18 inches wide.

What is the tray's serving area?

$$A = l \cdot w$$
$$= 26 \cdot 18$$
$$= 468 \text{ in}^2$$

$$2x + 7 = 13$$

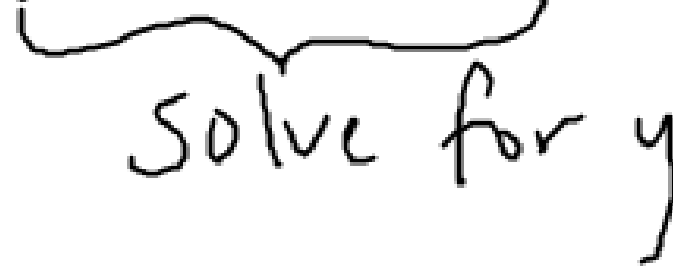
$$\begin{array}{r} -7 \\ \hline 2x \end{array} = 13 - 7$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x = 3$$

Rewrite an equation:

Write $3x + 2y = 8$ so that y is a function of x .

Solve for y

$$\begin{array}{r} 3x + 2y = 8 \\ -3x = -3x \\ \hline \end{array}$$

~~0x~~

$$\frac{2y}{2} = \frac{8}{2} - \frac{3x}{2}$$

$$y = 4 - \frac{3}{2}x$$

Rewrite an equation:

Write $-2x + 3y = 6$ so that y is a function of x .

$$\begin{array}{r} -2x + 3y = 6 \\ +2x \\ \hline \end{array}$$

~~3y = 6~~

$$3y = 6 + 2x$$

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

y by itself

Rewrite an equation:

Write $5x + 4y = 20$ so that y is a function of x .

$$5x + 4y = 20$$

$-5x$ $-5x$

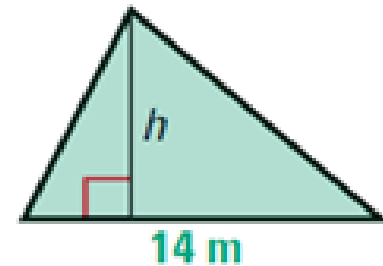
$$\frac{4y}{4} = \frac{20}{4} - \frac{5x}{4}$$

$$y = 5 - \frac{5}{4}x$$

What is the formula for the area of a triangle?

$$A = \frac{1}{2}bh$$

a. Solve this formula for h.



b. Use the rewritten formula to find the height of the triangle shown, which has an area of 64.4 square meters.

a. $A = \frac{1}{2}bh$

$2 \cdot A = 2 \cdot \frac{1}{2}bh$ mult by recip

$2A = bh$ simplify

$\frac{2A}{b} = \frac{bh}{b}$ \div by b

$\frac{2A}{b} = h$ simplify

b. $b = 14\text{ m}$

$A = 64.4\text{ m}^2$

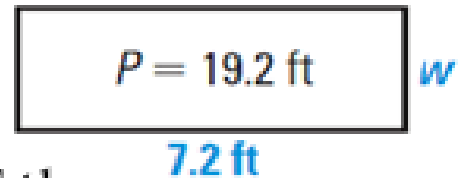
$h = \frac{2A}{b}$

$h = \frac{2 \cdot 64.4\text{ m}^2}{14\text{ m}} = \boxed{9.2\text{ m}}$

What is the formula for the perimeter of a rectangle?

$$P = 2l + 2w$$

a. Solve the formula for the width w .



b. Use the rewritten formula to find the width of the rectangle shown.

a. $P = 2l + 2w$

$$\begin{array}{r} -2l \quad -2l \\ \hline \end{array}$$

$$\frac{P - 2l}{2} = \frac{2w}{2}$$

$$\frac{1}{2}P - l = w$$

$$\begin{array}{l} P = 2l + 2w \\ 19.2 = 2(7.2) + 2w \\ 19.2 = 14.4 + 2w \\ 19.2 - 14.4 \\ 4.8 = 2w \\ \frac{4.8}{2} = \frac{2w}{2} \\ 2.4 = w \end{array}$$

b. $P = 19.2 \text{ ft}$ $l = 7.2 \text{ ft}$

$$w = \frac{1}{2}P - l$$

$$w = \frac{1}{2}(19.2) - 7.2$$

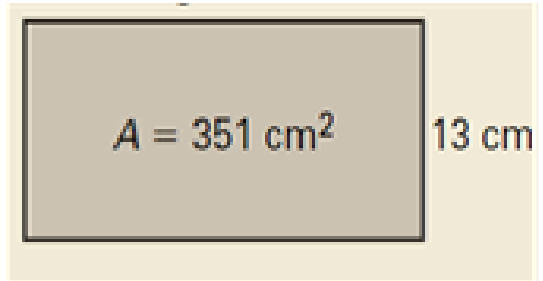
$$= 9.6 - 7.2$$

$$= 2.4 \text{ ft}$$

What is the formula for the area of a rectangle?

$$A = l \cdot w$$

a. Solve the formula for the length l .



b. Use the rewritten formula to find the length of the rectangle.

a. $A = l \cdot w$

$$\frac{A}{w} = \frac{l \cdot w}{w}$$

$$\frac{A}{w} = l$$

b. $A = 351 \text{ cm}^2$

$$w = 13 \text{ cm}$$

$$l = \frac{A}{w}$$

$$l = \frac{351 \text{ cm}^2}{13 \text{ cm}}$$

$$l = 27 \text{ cm}$$

TEMPERATURE You are visiting Toronto, Canada, over the weekend. A website gives the forecast shown. Find the low temperatures for Saturday and Sunday in degrees Fahrenheit. Use the formula $C = \frac{5}{9}(F - 32)$ where C is the temperature in degrees Celsius and F is the temperature in degrees Fahrenheit.

3 Day Forecast for Toronto		
Friday	Saturday	Sunday
 <p>Sunny High 21°C Low 13°C</p>	 <p>Sunny High 22°C Low 14°C</p>	 <p>Partly Cloudy High 16°C Low 10°C</p>

$C = \frac{5}{9}(F - 32)$
 $C = \frac{9}{5} \cdot \frac{5}{9}(F - 32)$
 $C = F - 32$

$\frac{9}{5}C + 32 = F$
 Fri: $F = \frac{9}{5}(13) + 32 = 55.4^{\circ}\text{F}$
 Sat: $F = \frac{9}{5}(14) + 32 = 57.2^{\circ}\text{F}$
 Sun: $F = \frac{9}{5}(10) + 32 = 50^{\circ}\text{F}$

Irma deposited \$650 in a savings account. After two years her account balance was \$682.50. Find the rate of interest for the two years. Use the formula $A=P(1+rt)$, where A is the account balance, P is principal, r is rate, and t is time. Rewrite the formula to isolate r and then solve.

$$A = \$682.50$$

$$P = \$650$$

$$t = 2 \text{ yrs}$$

$$r = ?$$

$$A = P(1+rt)$$

$$\frac{A}{P} = 1 + rt$$

$$\frac{A}{P} - 1 = rt$$

$$\left(\frac{A}{P} - 1\right) \div t = r$$

$$r = \left(\frac{A}{P} - 1\right) \div t$$

$$= \left(\frac{682.50}{650} - 1\right) \div 2$$

$$= 0.025$$

$$2.5\%$$

Homework:

pp 187-189

#'s 11-19 odd, 20-23,
32-34, 38-44 even

Review next time,
test following!