Bell Ringer - Solve the equation.

$$x = \sqrt{9x - 14}$$

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$$x = \sqrt{9x - 14}$$

$$(x)^2 = \left(\sqrt{9x-14}\right)^2$$

$$x^2 = 9x - 14$$

$$x^2 - 9x + 14 = 0$$

$$(x-7)(x-2) = 0$$

$$x = 7 \text{ and } 2$$

Chapter 12-3 Geometric Mean Notes

Algebraic Mean (average) of "x" and "y" $\quad \text{Mean} = \dfrac{x + y}{2}$

Geometric Mean of "x" and "y" $\quad \text{Mean} = \sqrt{xy}$

Find the Algebraic Mean and Geometric Mean

1) x = 3 and y = 27

$$A.M = \frac{x+y}{2}$$

$$= \frac{3+27}{2}$$

$$= \frac{30}{2}$$

$$= 15$$

$$G.M. = \sqrt{xy}$$

$$= \sqrt{3 \cdot 27}$$

$$= \sqrt{81}$$

$$= 9$$

Find the Algebraic Mean and Geometric Mean

2) $x = 5$ and $y = 45$

Find the Algebraic Mean and Geometric Mean

2) x = 5 and y = 45

$$AM = \frac{5+45}{2}$$

$$= \frac{50}{2}$$

$$= 25$$

$$GM = \sqrt{5 \cdot 45}$$

$$= \sqrt{225}$$

$$= 15$$

Given the geometric mean, find y.

3) geometric mean is 30; x = 6

$$GM = \sqrt{xy}$$

$$30 = \sqrt{6y}$$

$$(30)^2 = \left(\sqrt{6y}\right)^2$$

$$900 = 6y$$

$$150 = y$$

Given the geometric mean, find y.

4) geometric mean is 16; x = 8

Given the geometric mean, find y.

4) geometric mean is 16; x = 8

$$GM = \sqrt{xy}$$

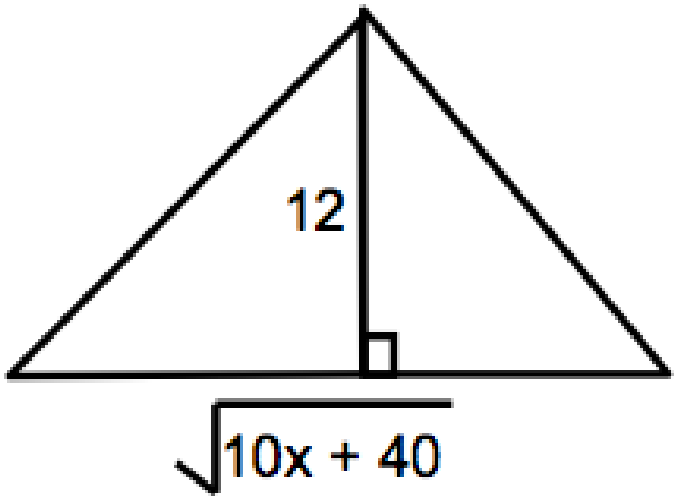
$$16 = \sqrt{8y}$$

$$(16)^2 = (\sqrt{8y})^2$$

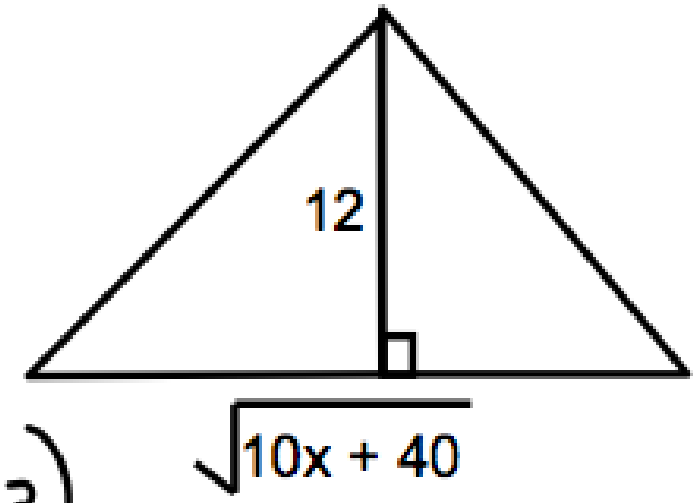
$$256 = 8y$$

$$32 = y$$

Area Problem. Find the value of "x" if the area equals 120 square feet.



Area Problem. Find the value of "x" if the area equals 120 square feet.



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

$120 = \frac{1}{2}(\sqrt{10x+40})(12)$

$120 = 6\sqrt{10x+40}$

$20 = \sqrt{10x+40}$

$(20)^2 = (\sqrt{10x+40})^2$

$400 = 10x + 40$

$360 = 10x$

$36 = x$

x = 36 ft