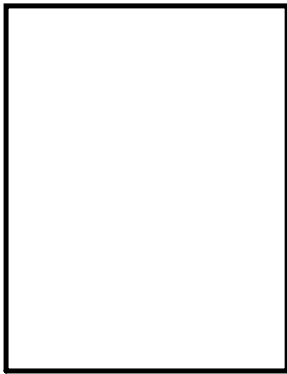


5.



x
10

$$\frac{2.5x}{25}$$

$$A = l \cdot w$$

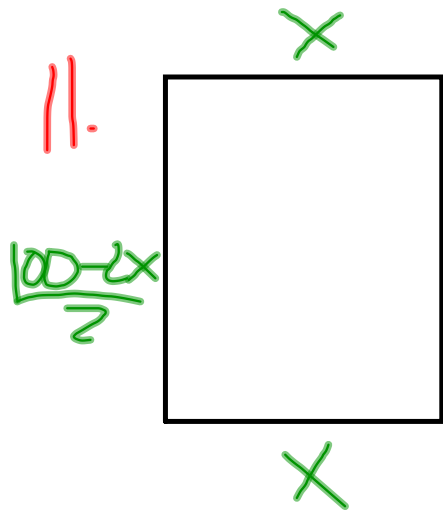
$$250 = (2.5x)(x)$$

$$\frac{250}{2.5} = \frac{2.5x^2}{2.5}$$

$$\sqrt{100} = \sqrt{x^2}$$

$$x = 10 \text{ cm} \times 25 \text{ (cm)}$$

70cm



$$A = lw$$

$$630 = x \cdot \frac{100-2x}{2}$$

$$630 = \frac{100x - 2x^2}{2}$$

$$1260 = 100x - 2x^2$$

$$-100x + 2x^2 - 100x + 2x^2$$

$$\frac{2x^2 - 100x + 1260}{2} = \frac{0}{2}$$

$$x^2 - 50x + 630 = 0$$

$$\left(\quad \quad \quad \right) = 0$$

No

$$A = \pi r^2$$

9.

$$A = lw$$

$$312 = x(50 - 2x)$$

$$312 = 50x - 2x^2$$

$-312 \quad -312$

$$0 = \frac{-2x^2 + 50x - 312}{-2}$$

$$0 = x^2 - 25x + 156$$

$$0 = (x - 12)(x - 13)$$

$$x - 12 = 0 \text{ or } x - 13 = 0$$

$$\begin{array}{l} x = 12 \text{ ft} \\ 26 \text{ ft} \end{array}$$

$$\begin{array}{l} x = 13 \text{ ft} \\ 24 \text{ ft} \end{array}$$

6.4 Apps. of Quadratics

Interest Problem:

$$A = P(1+r)^2 \quad (\text{for 2 years})$$

A = amount in your account

P = original investment

r = interest rate (decimal rate)

Ex: Find the interest rate if a deposit of \$ 5,000 increases to \$ 5798.25 over 2 years

$$A = P(1+r)^2$$
$$\frac{5798.25}{5000} = \frac{5000(1+r)^2}{5000}$$

$$\sqrt{1.16} = \sqrt{(1+r)^2}$$

$$1.08 = 1 + r$$

$$\begin{array}{r} -1 \\ -1 \end{array}$$

$$.08 = r$$

$$r = 8\%$$

Free Falling Object

A model rocket is projected straight upward from ground level according to the equation $h = -16t^2 + 192t$, h is height, t is time

a) After how many seconds is the height of the rocket 432 ft?

$$432 = -16t^2 + 192t$$

$$\begin{array}{r} -432 \\ -432 \end{array}$$

$$0 = \frac{-16t^2}{-16} + \frac{192t}{-16} - \frac{432}{-16}$$

$$0 = t^2 - 12t + 27$$

$$0 = (t-3)(t-9)$$

$$0 = t-3 \text{ or } 0 = t-9$$

$$t = 3 \text{ sec or } t = 9 \text{ sec}$$



b) After how many seconds does the rocket hit the ground?

$$h = -16t^2 + 192t$$

$$0 = -16t^2 + 192t$$

$$0 = -16t(t-12)$$

$$-16t = 0 \text{ or } t-12 = 0$$

$$\cancel{t=0 \text{ sec}} \quad t = 12 \text{ sec}$$

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18-36 even
odds extra credit