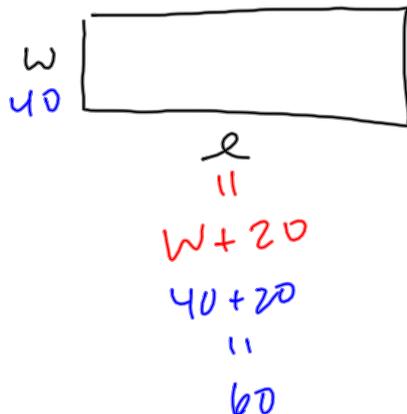


1. A rectangular parking lot has a length that is 20ft more than its width. Its area is 2400 ft². What are the dimensions of the lot?



width = 40

length = 60

$$A = b \cdot h$$

$$A = l \cdot w$$

$$2400 = (w + 20) \cdot w$$

$$2400 = w^2 + 20w$$

$$0 = w^2 + 20w - 2400$$

$$0 = (w + 60)(w - 40)$$

$$w + 60 > 0$$

$$w = 60$$

{40}

$$w - 40 < 0$$

$$w = 40$$

2. A rock is thrown directly upward from ground level. After t seconds, its height is given by

$$f(t) = -16t^2 + 256t$$

$$h = -16t^2 + 256t$$

- a. After how many seconds will it be 240 ft above the ground?

$$240 = -16t^2 + 256t$$

$$16t^2 - 256t + 240 = 0$$

$$16(t^2 - 16t + 15) = 0$$

$$16(t - 1)(t - 15) = 0$$

- b. Why is there two answers?

$$t - 1 = 0$$

$$t = 1$$

$$t - 15 = 0$$

$$t = 15$$

- c. When will the rock hit the ground?

$$0 = -16t^2 + 256t$$

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

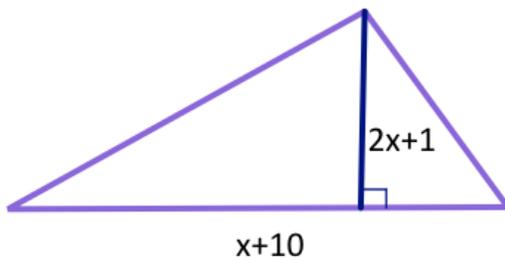
$$-16t = 0$$

$$t = 0$$

$$t - 16 = 0$$

$$t = 16$$

3. Find the height and base of the triangle if the area is 165 square feet.



$$A = \frac{1}{2} \cdot b \cdot h$$

$$165 = \frac{1}{2} (x+10)(2x+1)$$

$$165 = \frac{1}{2} (2x^2 + x + 20x + 10)$$

$$2 \cdot 165 = \frac{1}{2} (2x^2 + 21x + 10) \cdot 2$$

$$330 = 2x^2 + 21x + 10$$

$$0 = 2x^2 + 21x - 320$$

$$\frac{-21 \pm \sqrt{21^2 - 4(2)(-320)}}{2(2)}$$

$$-5.25 \pm 13.34$$

4. 9 times the square of a number gives the same result as if you took 6 times the number decreased by 1.

$$9x^2 = 6x - 1$$

HW: p 312 #49, 51, 53, 57-59