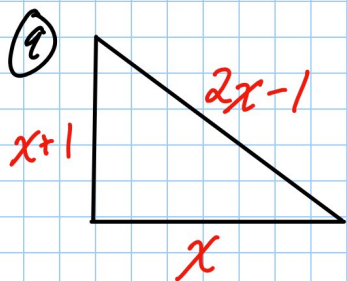


HW - Quad Word Probs Key

- we did 1, 2, 3, 4, 5, 6, 7, 8, 14 in class



Pythagorean Theorem

$$a^2 + b^2 = c^2$$

$$x^2 + (x+1)^2 = (2x-1)^2$$

$$x^2 + x^2 + 2x + 1 = 4x^2 - 4x + 1$$

$$\cancel{2x^2} + \cancel{2x} + 1 = 4x^2 - 4x + 1$$
$$\cancel{-2x^2} \quad \cancel{-2x} \quad \quad \quad \cancel{-2x^2} \quad \cancel{-2x}$$

$$0 = 2x^2 - 6x$$

$$0 = 2x(x-3)$$

$$\cancel{x=0} \text{ or } \boxed{x=3}$$

All 3 sides: 3, 4, 5
 $x \quad x+1 \quad 2x-1$

⑩ $P = -3t^2 + 18t - 4$

(a) x -value of vertex

$$x = \frac{-b}{2a} = \frac{-18}{2(-3)} = \boxed{3 \text{ years}}$$

(b) y -value of vertex

$$P = -3(3)^2 + 18(3) - 4 = 23$$

$$\boxed{P = \$23 \text{ thousand}}$$

③ X-ints. When Profit = 0

$$0 = -3t^2 + 18t - 4$$

Use Quad Formula:

$$x = \frac{-18 \pm \sqrt{18^2 - 4(-3)(-4)}}{2(-3)}$$

$$= \frac{-18 \pm \sqrt{276}}{-6} = \frac{-18 \pm 2\sqrt{69}}{-6}$$

$$= \cancel{.23} \text{ or } \boxed{5.77}$$

⑪ Let x = first number

$x+2$ = second

$x+4$ = third

Equation:

$$x(x+4) = 7(x+2) - 4$$

$$x^2 + 4x = 7x + 14 - 4$$

$$x^2 - 3x - 10 = 0$$

$$(x-5)(x+2) = 0$$

$$\boxed{x=5} \quad x=-2$$

Ans: 5, 7, 9

$$(12) \quad d = 2t^2 + 6t$$

$$108 = 2t^2 + 6t$$

$$0 = 2t^2 + 6t - 108$$

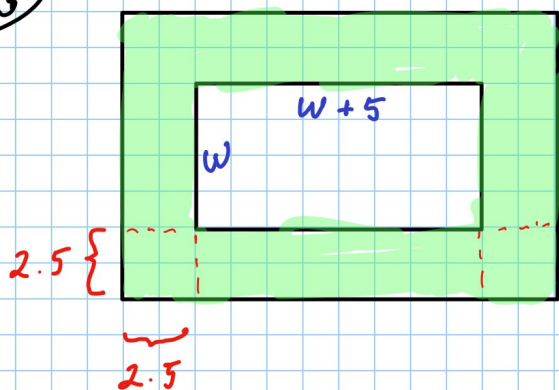
$$0 = 2(t^2 + 3t - 54)$$

$$0 = 2(t + 9)(t - 6)$$

~~$$t = -9$$~~

$$\boxed{t = 6 \text{ s}}$$

(13)



Picture:

$$w(w+5) = 300$$

$$w^2 + 5w = 300$$

$$w^2 + 5w - 300 = 0$$

$$(w+20)(w-15) = 0$$

~~$$w = -20$$~~

$$\boxed{w = 15}$$

$$l = 20$$

Frame:

$$\text{width: } 15 + 2(2.5) = 20$$

$$\text{length: } 20 + 2(2.5) = 25$$

$$\boxed{20 \times 25 \text{ in}}$$