

4/23 - HW

$$h = -16t^2 + 112t + 56$$

When will $h = 56$?

~~$$56 = -16t^2 + 112t + 56$$~~

$$0 = -16t^2 + 112t$$

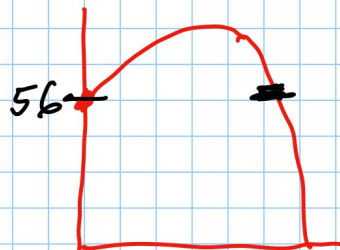
$$0 = \underbrace{-16t}_{\text{green}} (\underbrace{t - 7}_{\text{green}})$$

$$0 = -16t$$

$$t = 0$$

$$0 = t - 7$$

$$t = 7$$



$$h = -16t^2 + 20t - 4$$

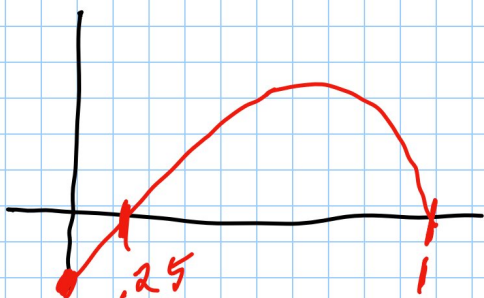
$$= -4(t^2 - 5t + 1)$$

$$= -4(t - 1)(4t - 1)$$

$$0 =$$

$$\boxed{t = 1}$$

$$\text{or } t = .25$$



4. ^{Let} $x = \text{first number}$

$x+2 = \text{second number}$

$$x^2 + 3(x+2) = 24$$

$$x^2 + 3x + 6 = 24$$

$-24 \quad -24$

$$x^2 + 3x - 18 = 0$$

$$(x+6)(x-3) = 0$$

$$x = -6 \quad \boxed{x = 3}$$

$$\boxed{3 \text{ and } 5}$$

$$\boxed{A = 45} \quad w$$

$$l = 2w - 1$$

$$lw = 45$$

$$(2w-1)w = 45$$

$$2w^2 - w - 45 = 0$$

$$(2w+9)(w-5) = 0$$

$$w = -\frac{9}{2}$$

$$\boxed{w = 5}$$

$$\boxed{l = 9}$$

④ $y = -16x^2 + 96x + 112$

① y-value vertex

② x-int

① $x = \frac{-b}{2a} = \frac{-96}{2(-16)} = 3$

$$y = -16(3)^2 + 96(3) + 112$$

$$y = 256 \text{ ft}$$

② $-16(t^2 - 6t - 7) = 0$

$$-16(t - 7)(t + 1) = 0$$

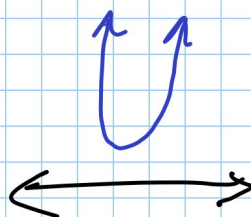
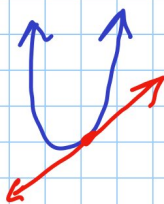
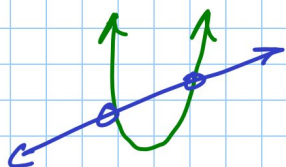
$t = 7$ or $t = -1$

System

- Quadratic - Linear System

- One, Two, or No solutions

- Parabola and Line



Steps:

- ① Put both equations in $y =$ form
- ② Set them equal to each other
- ③ Simplify to standard form ($= 0$)
- ④ Solve for x
- ⑤ Find y using the linear equation.
- ⑥ Answer: (x, y)

Ex:
$$\left. \begin{aligned} y &= x^2 - 5x + 7 \\ y &= 2x + 1 \end{aligned} \right\}$$

$$\begin{array}{ccccccc} x^2 & - & 5x & + & 7 & = & 2x + 1 \\ & & -2x & & -1 & & -2x & -1 \end{array}$$

$$x^2 - 7x + 6 = 0$$

$$(x - 6)(x - 1) = 0$$

$$x = 6 \quad x = 1$$

$$y = 2(6) + 1 = 13 \quad y = 2(1) + 1 = 3$$

$$\boxed{(6, 13)} \text{ and } \boxed{(1, 3)}$$