

Key

5/11/20

### Quad Ex 4

- ball shot into air from 50' above the ground
- Velocity is 20 ft/sec
- $h(t) = -16t^2 + 20t + 50$
- How long does it take to hit the ground?  
 $h = 0$

$$0 = -16t^2 + 20t + 50$$

$$8t^2 - 10t - 25 = 0$$

(Factor out -2)  $\nabla$  not technically needed if using quad form.

$$t = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$t = \frac{10 \pm \sqrt{(-10)^2 - 4(8)(-25)}}{2(8)}$$

$$t = \frac{10 \pm \sqrt{1900}}{16}$$

$$t = \frac{10 \pm 30}{16} \rightarrow \frac{10+30}{16} \quad \& \quad \frac{10-30}{16}$$

$\downarrow$  sec.  $\downarrow$   
 $\boxed{5/2}$  or  $\boxed{\cancel{5/4}}$  not an option b/c it is neg.

$$\left. \begin{aligned} -16\left(\frac{5}{2}\right)^2 + 20\left(\frac{5}{2}\right) + 50 &= 0 \\ -100 + 50 + 50 &= 0 \\ 0 &= 0 \quad \checkmark \end{aligned} \right\} \text{check answer}$$