

1f. Set $h=0$

$$0 = -16t^2 + 112t + 160$$

$$0 = t^2 - 7t - 10$$

can use quadratic formula

$$t = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A} = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(1)(-10)}}{2(1)}$$

$$t \approx 8.217 \quad \text{or} \quad t \approx -1.217$$

Only positive value for t makes sense here.

about 8.217 sec.

1g.

Domain
 $0 \leq t \leq 8.217$

Range
 $0 \leq h \leq 356$

1h.

| t | h |
|-----|-----|
| 1 | 256 |
| 3 | 352 |

$$\frac{352 - 256}{3 - 1} = 48$$

+48 ft/sec

1i.

| t | h |
|-----|-----|
| 5 | 212 |
| 8 | 32 |

$$\frac{32 - 212}{8 - 5} = -60$$

-60 ft/sec