An object is shot into the air with an initial velocity of 48 ft/sec from the top of a 160 foot tall building.

The following equation models the height of the object as a function of time: $h(t) = -16t^2 + 48t + 160$

1. Find the (max) height of the object and the time it takes to reach that height.

$(x, y) \rightarrow (t, h)$

$t = \dfrac{-b}{2a} = \dfrac{-48}{-32}$

$h(1.5) = 196 ft$ $= 1.5 \, sec$

2. Find the time it takes the object to reach the ground.

$0 = -16t^2 + 48t + 160$

$-16(t^2 - 3t - 10) = -16(t-5)(t+2)$

$t = (5) - 2$

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The following equation models the height of the object as a function of time: $h(t) = -16t^2 + 48t + 160$

3. Find the time it takes to reach a height of 192 ft.

$t = 1 \, sec$
$2 \, sec$

$192 = -16t^2 + 48t + 160$

$0 = -16t^2 + 48t - 32$

$0 = -16(t^2 - 3t + 2)$

$-16(t-2)(t-1)$

4. Find the time it takes to reach a height of 96 ft.

$t = 4 \, sec$
$-1 \, sec$

$96 = -16t^2 + 48t + 160$

$0 = -16t^2 + 48t + 64$

$0 = -16(t^2 - 3t - 4)$

$-16(t-4)(t+1)$

Solve: $2x^2 + 72 = 22$

$-72 \quad -72$

$2x^2 = -50$

$x^2 = \mp 25$

NO Real Sol

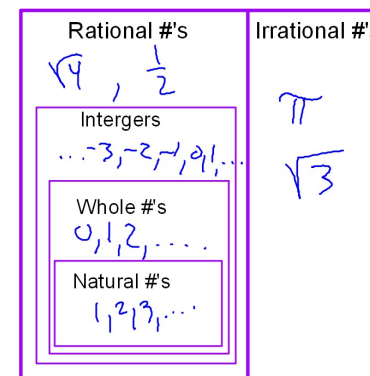Simplify: $\sqrt{80}$

$\sqrt{16 \cdot 5}$

$4\sqrt{5}$

Complex Numbers

Real Numbers   Imaginary Numbers

Rational #'s	Irrational #'s
$\sqrt{4}$, $\frac{1}{2}$	π
Intergers	$\sqrt{3}$
...-3,-2,-1,0,1,...	
Whole #'s	
0,1,2,....	
Natural #'s	
1,2,3,...	