

Starter #4-Projectiles

1. Some naughty kids are throwing water balloons out of a window. There is a person directly below the window. If the window is 40 feet above the ground and the person is 5 feet tall, how long will it take the balloon to hit the person?
2. A rocket is launched from a 10 meter platform at 54m/s. For what interval of time is it more than 75 meters in the air?
3. A object is thrown upward from the ground with an initial velocity of 135 ft/sec. If the object reaches 60 feet it will explode. How long until it explodes?

Feb 5-2:36 PM

1. Some naughty kids are throwing water balloons out of a window. There is a person directly below the window. If the window is 40 feet above the ground and the person is 5 feet tall, how long will it take the balloon to hit the person?

$h(t) = 5$
 $t =$
 $y_1 = 16t^2 + 40$
 $y_2 = 5$
 $h = 40$

The balloon will hit the person 1.48 sec. after it's thrown

Feb 6-7:50 AM

2. A rocket is launched from a 10 meter platform at 54m/s. For what interval of time is it more than 75 meters in the air?

$h(t) = 75$
 $t =$
 $v_0 = 54$
 $h = 10$

y_2
 y_1
 $-4.9x^2 + 54x + 10$

The rocket exceeds 75 m between 1.38 to 9.65 sec

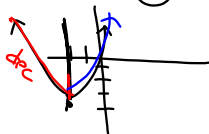
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3. A object is thrown upward from the ground with an initial velocity of 135 ft/sec. If the object reaches 60 feet it will explode. How long until it explodes?

The rocket will be in the air from 0 sec to 4.7 sec before it explodes

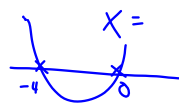
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$f(x) = (x+2)^2 - 4$
 dec $(-\infty, -2)$
 vertex $(-2, -4)$
 inc $(-2, \infty)$



Feb 6-10:23 AM

$f(x) = (x+2)^2 - 4$



pos: $(-\infty, -4) \cup (0, \infty)$
 neg: $(-4, 0)$

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$$\lim_{x \rightarrow -\infty} f(x) = \infty$$

left

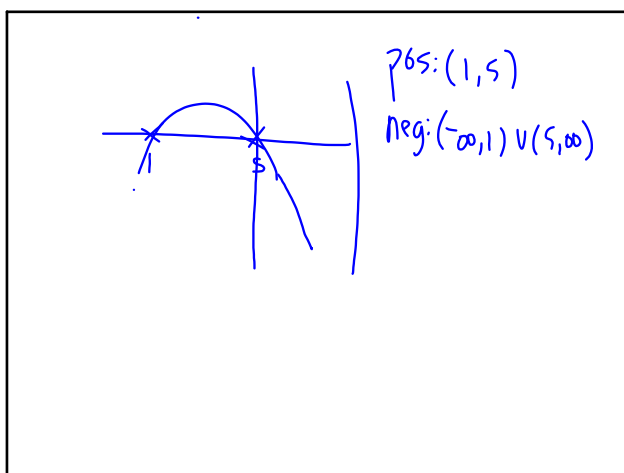
$$\lim_{x \rightarrow \infty} f(x) = \infty$$

right

Feb 6-10:38 AM

SLO Review #2

Feb 6-10:47 AM



Feb 6-10:47 AM

③ $\begin{bmatrix} 11 & 5 \\ 2 & 5 \end{bmatrix}$

(2, 11)

(5, 5)

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{+6}{-3} = -2$$

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$$\frac{-6 \text{ r } 4}{-5 \text{ r } 4} = \frac{-2}{-1} = 2$$

Feb 6-10:53 AM