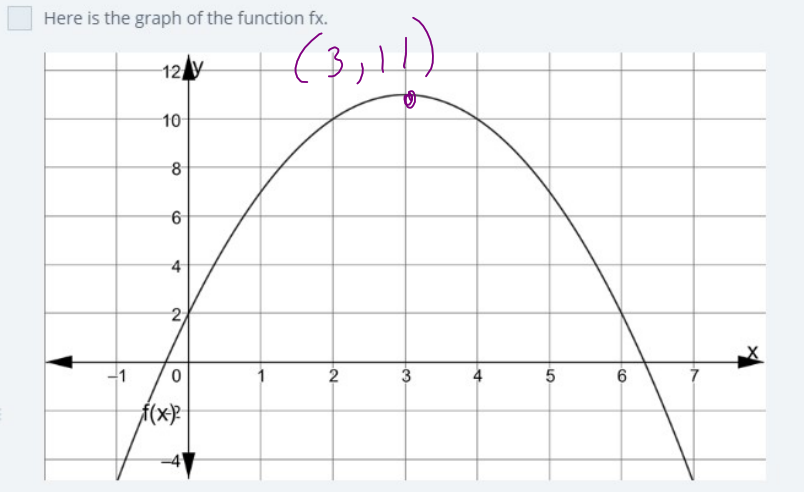


Section 5 topics 1-6 review

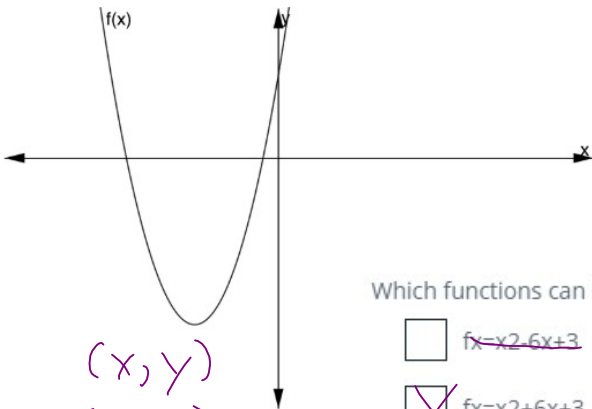


$$\frac{-b}{2a} = A.O.S.$$

Which functions have a larger maximum than f_x ? Select all that apply.

- $u_x = -x^2 + 2x + 2$ $-\frac{2}{2(-1)} = 1$ $-1 + 2 + 2 = 3$
- $g_x = -x^2 + 4x + 6$ $-\frac{4}{2(-1)} = 2$ $-(2)^2 + 4(2) + 6 = -4 + 8 + 6 = 10$
- $h_x = -x^2 + 8x + 3$ $-\frac{8}{2(-1)} = 4$ $-(4)^2 + 8(4) + 3 = -16 + 32 + 3$
- $t_x = -2x^2 + 3x + 10$ $-\frac{3}{2(-2)} = 0.75$ $-2(0.75)^2 + 3(0.75) + 10 = -1.125 + 2.25 + 10$
- $k_x = -2x^2 + 7x + 14$ $-\frac{7}{2(-2)} = 1.75$ $-2(1.75)^2 + 7(1.75) + 14 = -6.125 + 12.25 + 14$

Here is the graph of $f(x)$.

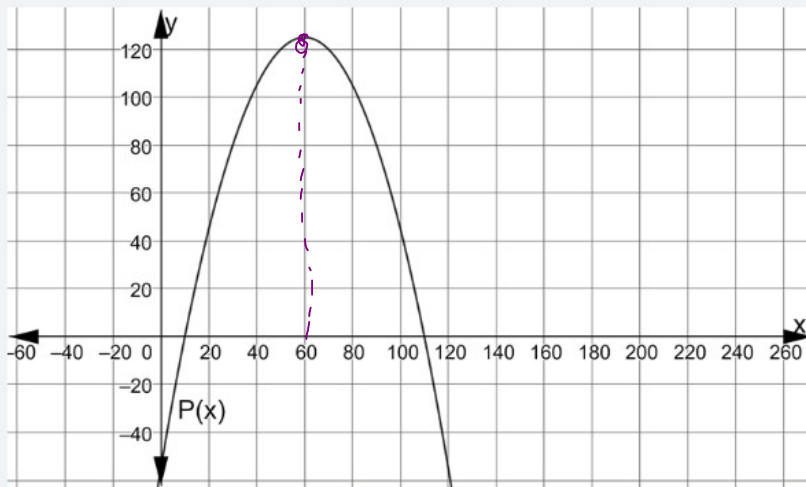


(x, y)
 $(-, -)$

Which functions can be representations of the graph of $f(x)$? Select all that apply.

- $f(x) = x^2 - 6x + 3$ $\frac{6}{2(1)} = 3$
- $f(x) = x^2 + 6x + 3$ $\frac{-6}{2(1)} = -3$ $(-3)^2 + 6(-3) + 3$
 $9 - 18 + 3$
- $f(x) = x^2 + 6x - 3$ $\frac{-6}{2(1)} = -3$
- $f(x) = x^2 + 18x + 5$ $\frac{-18}{2(1)} = -9$ $(-9)^2 + 18(-9) + 5$
 $81 - 162 + 5$
- $f(x) = x^2 - 18x + 5$ $\frac{+18}{2(1)} = 9$
- $f(x) = x^2 + 18x - 5$ $\frac{-18}{2(1)} = -9$

The graph of the function $P(x)$ models the amount of money a business will make for producing and selling x packs of dehydrated mangoes.



The function,

- A $P(x) = -0.050x^2 + 6x - 55$ $\frac{-6}{2(-0.05)}$
- B $P(x) = -0.050x^2 - 6x - 55$ $\frac{6}{2(-1)}$
- C $P(x) = -0.050x^2 - 6x - 55$
- D $P(x) = -0.050x^2 + 6x - 55$

can be used to find the number of packs,

- A 10
- B 60
- C 110

they will have to sell for maximum profit.

Isla wrote a quadratic function in vertex form. She challenged her friend, Milo, to guess the function based on clues that she provides. The clues are as follows:

- My function has a maximum point at (2, 8).
- My function passes through the origin. $(0, 0)$
- My function has an additional x-intercept at (4, 0).

Which function should be Milo's guess?

A ~~$f(x) = x^2 + 8$~~

B ~~$f(x) = 2x^2 + 8$~~

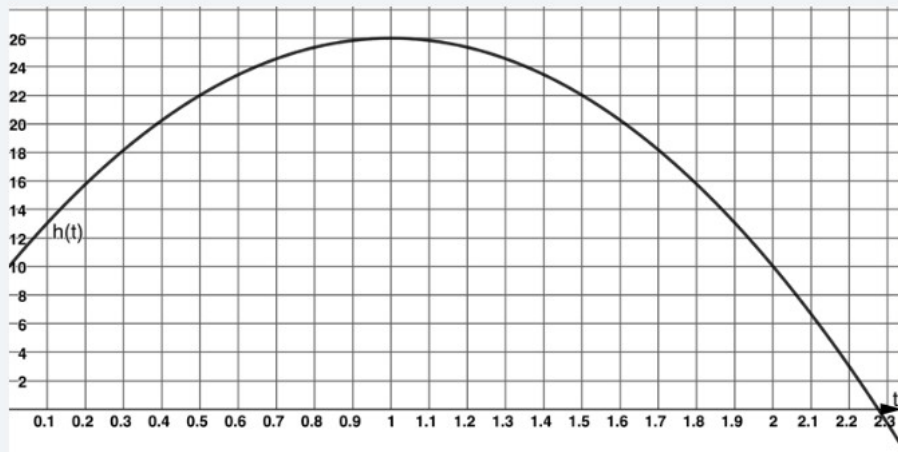
C $f(x) = -x^2 + 8$

D $f(x) = -2x^2 + 8$

$$-(4)^2 + 2(4) + 8$$

$$-16 + 8 + 8 = 0$$

The graph shows the height of a pebble above a lake, $h(t)$, as a function of time measured in seconds.



The function modeled in the graph is

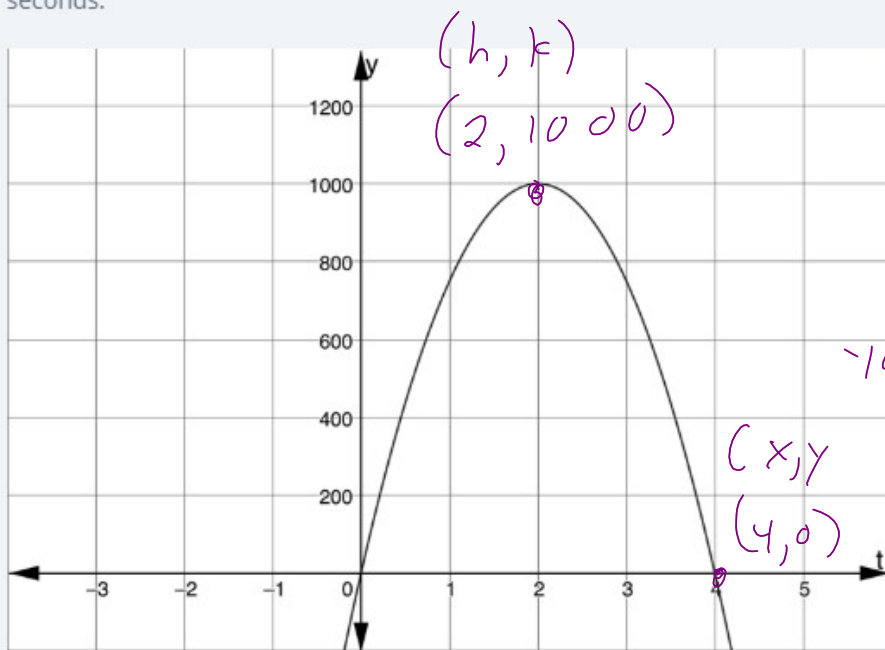
- A $ht = -16t^2 - 64 + 12$ *$64/2(-16)$*
- B $ht = -16t^2 - 32 + 10$
- C $ht = -16t^2 + 64 + 26$ *$-64/2(-16)$*

Factoring the function gives the zeros of the function, where

- A $x = 0$
- B $x = 1$
- C $x \approx 2.3$

is equivalent to the time when the pebble hits the surface of the water.

The movement of fireworks launched from a ship at sea is shown on the graph, where h is height in feet after t seconds.



$$y = a(x-h)^2 + k$$

$$0 = a(4-2)^2 + 1000$$

$$0 = a(2)^2 + 1000$$

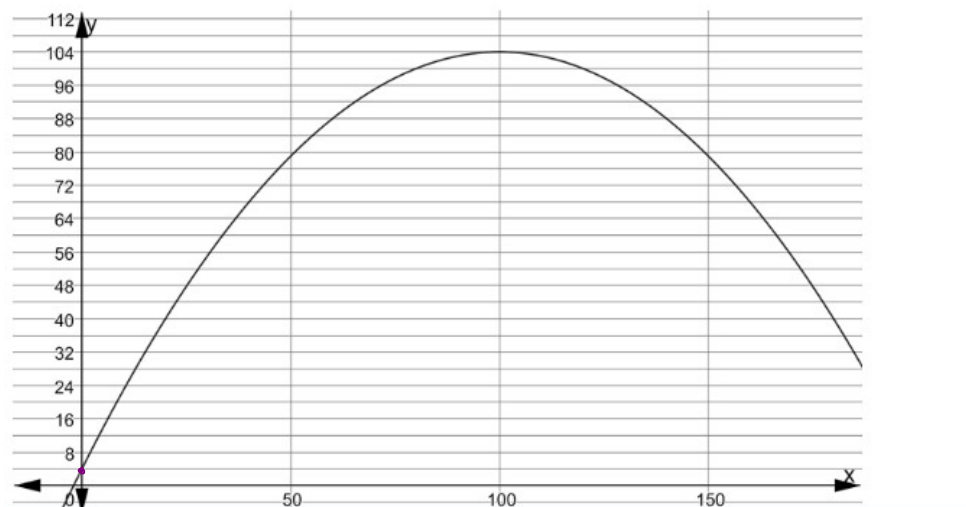
$$0 = 4a + 1000$$

$$\begin{matrix} -1000 & -1000 \\ \hline 4 & 4 \end{matrix}$$

$$-250 = a$$

$$y = -250(x-2)^2 + 1000$$

The graph represents the projected profit function of Green & Clean Car Manufacturer, where x represents quantity sold and $f(x)$ represents the profit in millions of dollars.



The vertex form of the graph is

- A $f(x) = -100x - 1002 + 104$
 $-100(x-100)^2 + 104$
- B $f(x) = -0.01x - 1002 + 104$
 $-0.01(x-100)^2 + 104$
- C $f(x) = -0.01x + 1002 + 104$
 $-0.01(x+100)^2 + 104$

and the company attains a maximum profit of

- A \$4,000,000
- B \$100,000,000
- C \$104,000,000

