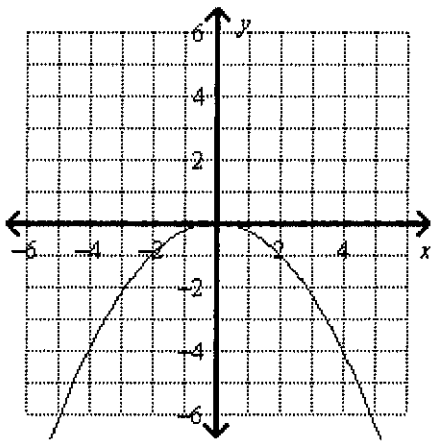
04 - Lesson 3, Exam 4

Part 1 of 1 - 25.0/ 100.0 Points

Question 1 of 20 0.0/ 5.0 Points

Compare the equation, $y = 9x - 4x^2$, the graph below, and the table below. Which has the steepest rate of change from x = 1 to x = 2, and what is its value?



x	y
-1	0
1	2
2	0
3	-4

- A. graph, –1
- B. equation, –3
- C. table, -1/2
- D. equation, -1/3

Question 2 of 20 5.0/ 5.0 Points

Which sum is equal to $\frac{x^2 + 6x - 5}{x^2 - 25}$?

- A. $\frac{1}{x-5} + \frac{x}{x+5}$

$$\frac{1}{x+5}+\frac{x^2}{x-5}$$

○ B.

$$\frac{1}{x+5}+\frac{x+5}{x-5}$$

○ C.

$$\frac{1}{x+5}+\frac{x}{x-5}$$

◉ D.

Question 3 of 20 5.0/ 5.0 Points

The function $y = -16t^2 + 486$ models the height y in feet of a stone t seconds after it is dropped from the edge of a vertical cliff. How long will it take the stone to hit the ground? Round to the nearest hundredth of a second.

○ A. 0.25 seconds

○ B. 7.79 seconds

◉ C. 5.51 seconds

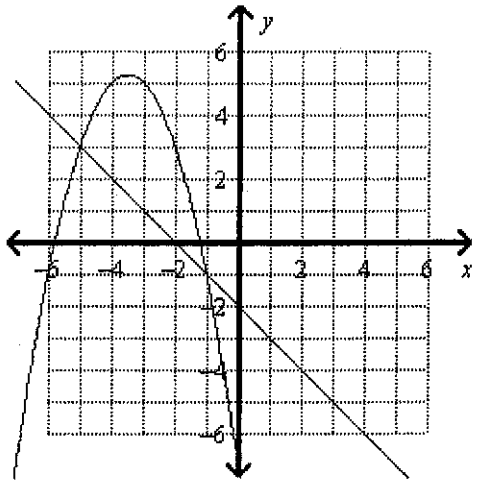
○ D. 11.02 seconds

Question 4 of 20 0.0/ 5.0 Points

Use graphing to find the solutions to the system of equations.

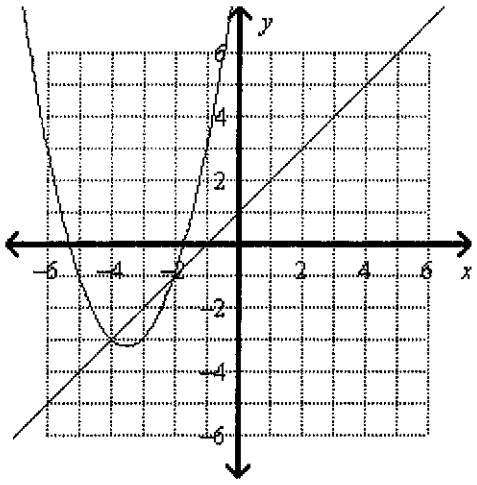
$$\begin{cases} y = x^2 + 7x + 7 \\ y = x + 2 \end{cases}$$

○ A.



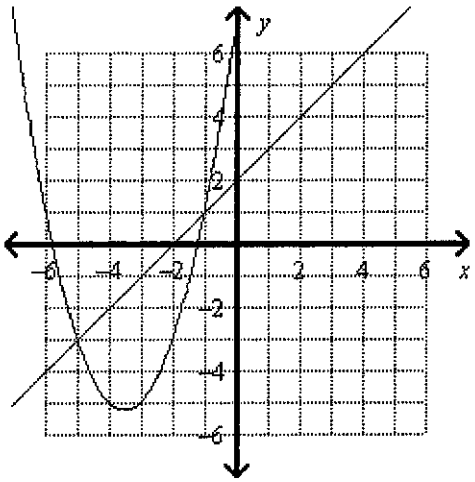
(–5, 3) (–1, –1)

○ B.



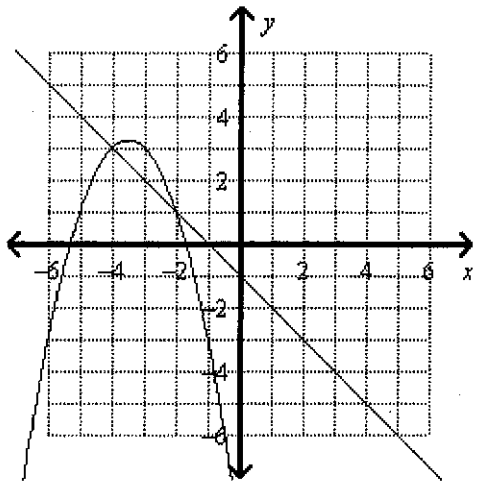
(–4, –3) (–2, -1)

○ C.



(–5, –3) (–1, 1)

◉ D.



(–4, 3) (–2, 1)

Question 5 of 20 0.0/ 5.0 Points

During a manufacturing process, a metal part in a machine is exposed to varying temperature conditions. The manufacturer of the machine recommends that the temperature of the machine part remain below 132 ° F. The temperature T in degrees Fahrenheit x minutes after the machine is put into operation is modeled by T = -0.005x2 + 0.45x + 125. Will the temperature of the part ever reach or exceed 132 ° F? Use the discriminant of a quadratic equation to decide.

◉ A. No

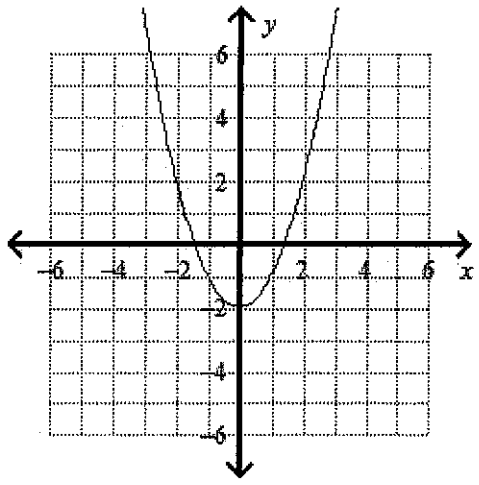
○ B. Yes

Question 6 of 20 0.0/ 5.0 Points

Graph each function. How is each graph a translation of $f(x) = x^2$?

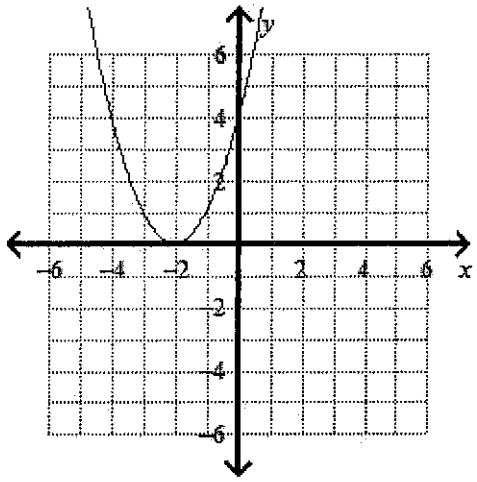
$y = (x - 2)^2$

◉ A.



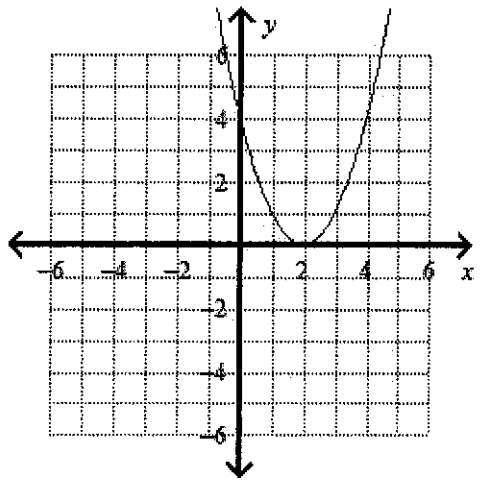
f(*x*) translated down 2 unit(s)

○ B.



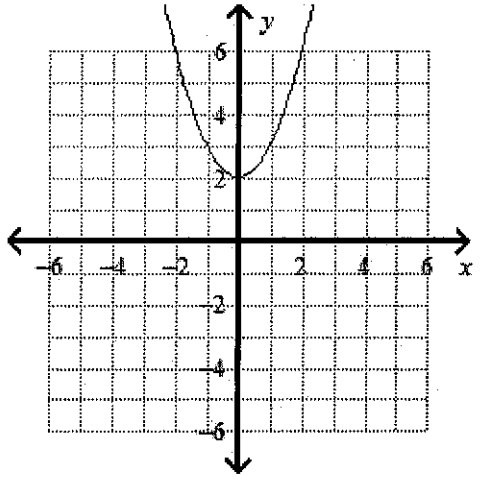
f(*x*) translated to the left 2 unit(s)

○ C.



$f(x)$ translated to the right 2 unit(s)

○ D.



Question 7 of 20 0.0/ 5.0 Points

The function $h = -t^2 + 95$ models the path of a ball thrown by a boy where h represents height, in feet, and t represents the time, in seconds, that the ball is in the air. Assuming the boy lives at sea level where $h = 0$ ft, which is a likely place the boy could have been standing when he threw this ball?

○ A. his backyard

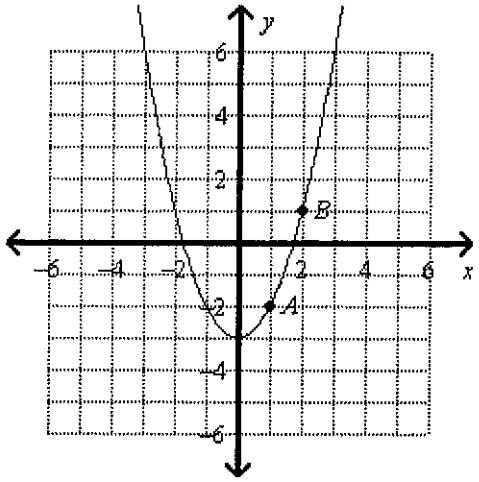
◉ B. an underground cave

○ C. a ladder

○ D. a bridge

Question 8 of 20 0.0/ 5.0 Points

What is the rate of change for the interval between A and B?



- A. 3
- B. 1/3
- C. 1
- D. 0

Question 9 of 20 5.0/ 5.0 Points

Simplify the number using the imaginary unit i.

$\sqrt{-144}$

- A. 12
- B. -12
- C. 12i
- D. 144i

Question 10 of 20 0.0/ 5.0 Points

What is the expression in factored form?

$x^2 + 14x + 48$

- A. (x + 6)(x + 8)
- B. (x + 8)(x - 6)
- C. (x + 6)(x - 8)
- D. (x - 8)(x - 6)

Question 11 of 20 0.0/ 5.0 Points

Solve the equation.

$x^2 + 18x + 81 = 25$

- A. 14, 4
- B. –4, –14
- C. 14, –14
- D. –4, 4

Question 12 of 20 0.0/ 5.0 Points

What is the expression in factored form?

$16x^2 - 25$

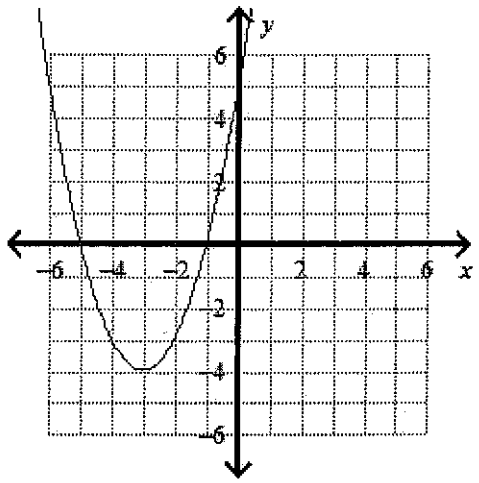
- A. $(4x - 5)^2$
- B. $(4x + 5)(4x - 5)$
- C. $(4x + 5)(-4x - 5)$
- D. $(-4x + 5)(4x - 5)$

Question 13 of 20 5.0/ 5.0 Points

Graph each function. How is each graph a translation of $f(x) = x^2$?

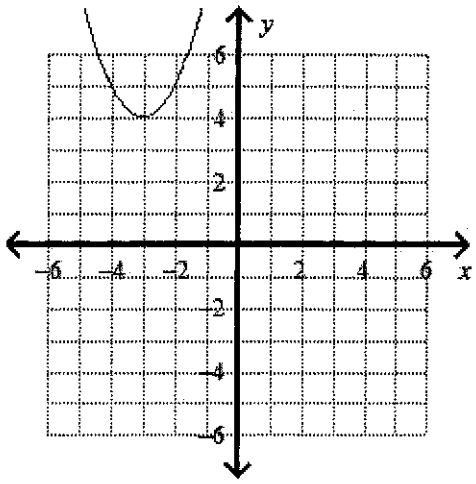
$y = (x + 3)^2 + 4$

- A.



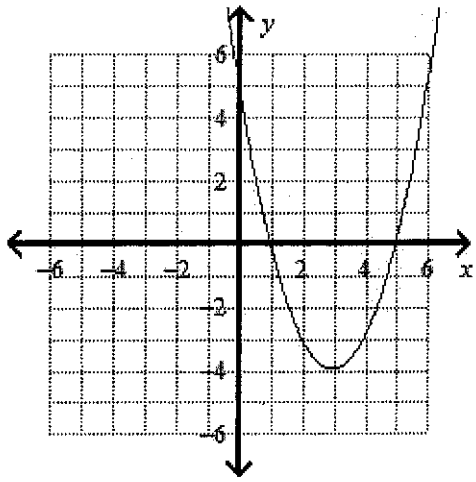
$f(x)$ translated down 4 unit(s) and translated to the left 3 unit(s)

◉ B.



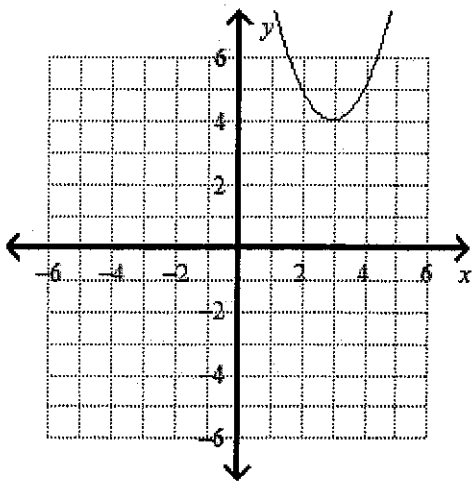
f(*x*) translated up 4 unit(s) and translated to the left 3 unit(s)

○ C.



f(*x*) translated down 4 unit(s) and translated to the right 3 unit(s)

○ D.



f(*x*) translated down 4 unit(s) and translated to the right 3 unit(s)

Question 14 of 20 5.0/ 5.0 Points

What value completes the square for the expression?

$x^2 - 18x$

○ A. 9

○ B. -9

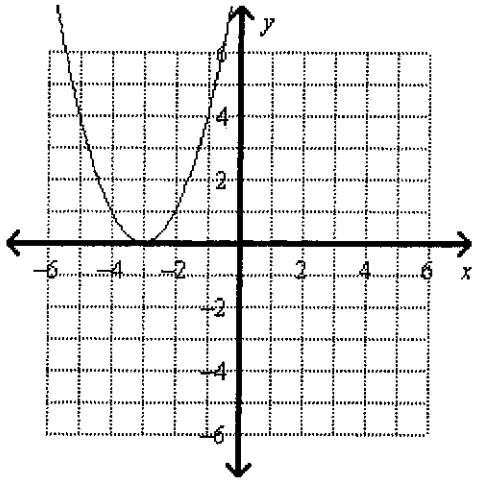
◉ C. 81

○ D. -81

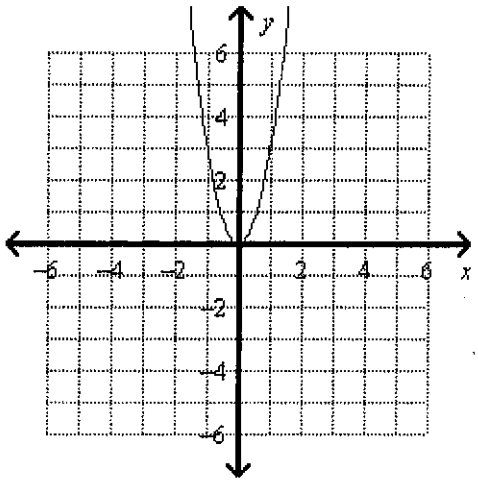
Question 15 of 20 0.0/ 5.0 Points

What is the graph of the function?

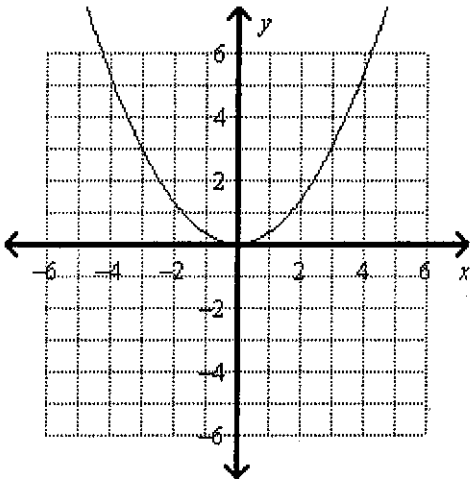
$f(x) = \frac{1}{3}x^2$



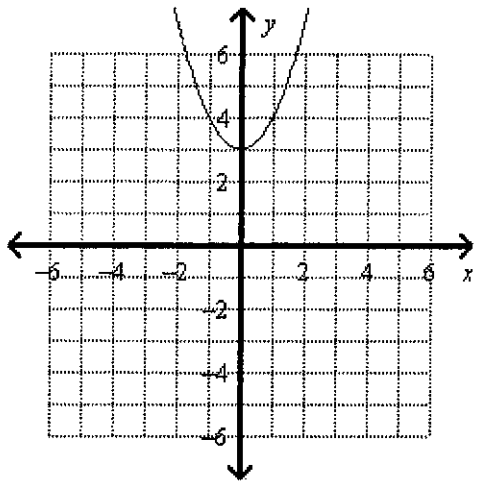
○ A.



○ B.



○ C.



◉ D.

Question 16 of 20 0.0/ 5.0 Points

Find the solutions of the equation.

$1/2x^2 - x + 5 = 0$

○ A. $1 \pm 3i$

○ B.

$1 \pm \sqrt{11}i$

○ C. $-1 \pm 3i$

◉ D.

$-1 \pm \sqrt{11}i$

Question 17 of 20 0.0/ 5.0 Points

Identify the maximum or minimum value and the domain and range of the graph of the function

$y = 2(x + 2)^2 - 3$

○ A.

minimum value: 3
domain: all real numbers 3
range: all real numbers

◉ B.

maximum value: -3
domain: all real numbers ≤ 3
range: all real numbers

○ C.

maximum value: 3
domain: all real numbers
range: all real numbers ≤ 3

○ D.

minimum value: 3
domain: all real numbers
range: all real numbers ≥ -3

Question 18 of 20 0.0/ 5.0 Points

What is the equation, in standard form, of a parabola that models the values in the table?

x	-2	0	4
f(x)	-7	3	-73

○ A. $y = -3x^2 - 4x + 3$

○ B. $y = 4x^2 + 3x - 3$

◉ C. $y = -3x^2 - 3x + 4$

○ D. $y = -4x^2 - 3x + 3$

Question 19 of 20 0.0/ 5.0 Points

Simplify the expression.

$(3 + i) - (2 - 2i)$

○ A. 1 + 3i

○ B. 5 - i

○ C. 4i

◉ D. -1 - 3i

Question 20 of 20 0.0/ 5.0 Points

Use the Quadratic Formula to solve the equation.

$-2x^2 - 5x + 5 = 0$

○ A. $-\frac{5}{2} \pm \frac{\sqrt{65}}{2}$

◉ B. $-\frac{4}{5} \pm \frac{\sqrt{130}}{4}$

○ C. $-\frac{5}{4} \pm \frac{\sqrt{32}}{2}$

○ D. $-\frac{5}{4} \pm \frac{\sqrt{65}}{4}$