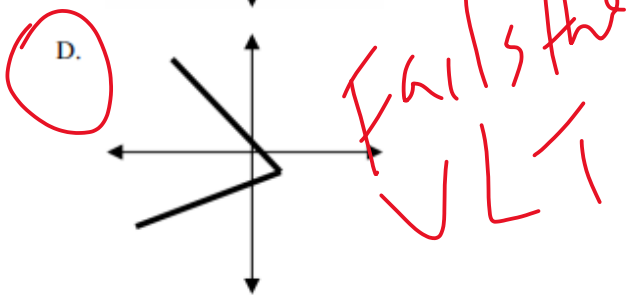
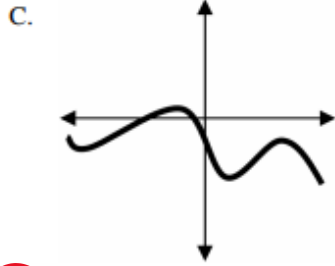
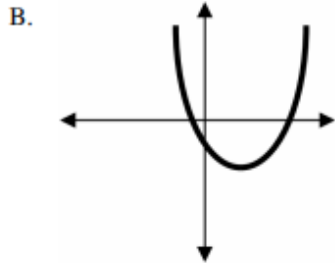
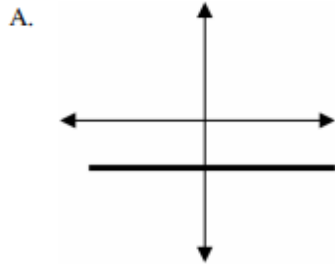


Unit 2B/3B Review

Name: _____

$$f(2) = 2(2)^3 - 2 = 16 - 2 = 14$$

1. Which graph does *not* represent a function?



2. Which relation is a function?

A. $\{(-1, 3), (-2, 6), (0, 0), (-2, -2)\}$

B. $\{(-2, -2), (0, 0), (1, 1), (2, 2)\}$ *x's do not repeat*

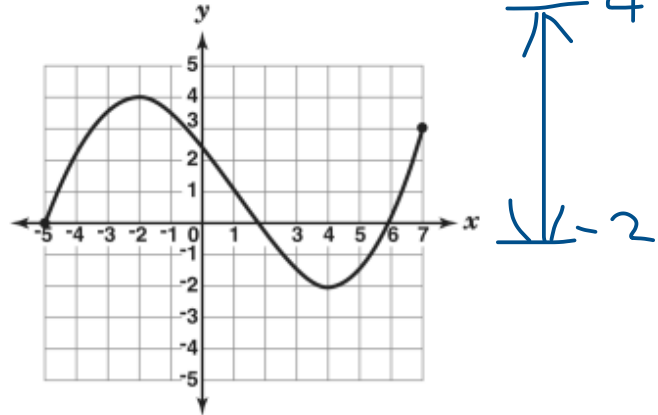
C. $\{(4, 0), (4, 1), (4, 2), (4, 3)\}$

D. $\{(7, 4), (8, 8), (10, 8), (10, 10)\}$

3. If $f(x) = 2x^3 - 2$, what is the value of $f(2)$?

- A. 6 B. 10 C. 14 D. 62

4. Look at the function that is graphed below.



What is the range of this function?

- A. $-5 \leq y \leq 7$ B. $-5 \leq y \leq 3$
 C. $-2 \leq y \leq 3$ D. $-2 \leq y \leq 4$

5. What is the slope of the line containing the points $(-2, 5)$ and $(1, -7)$?

graph, table, formula

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(-7) - (5)}{(1) - (-2)} = \frac{-12}{3} = -4$$

6. Which equation represents the data in the table?

m = 30/10 = 3

n	C
10	70
20	100
30	130
40	160

+10 *y = mx + b* *+30*

- A. $C = 3n + 40$ B. $C = -3n - 40$
 C. $C = 3n - 100$ D. $C = -3n + 100$

$y = mx + b$

7. The total cost in dollars, y , of a membership at each of four health clubs is represented below in terms of x , the number of months of the membership.

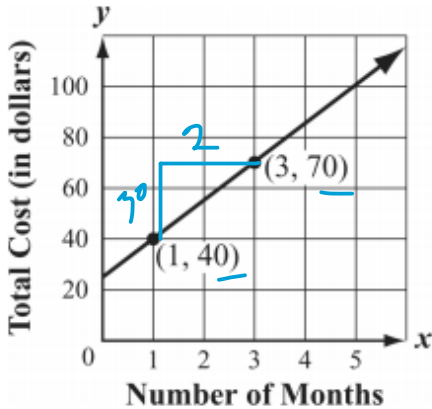
• Health Club A:

$y = 12x + 60$

• Health Club B:

x	y
0	\$ 0
1	\$21
2	\$42
3	\$63
4	\$84

• Health Club C:



• Health Club D:

A customer pays a one-time fee of \$20 plus \$20 each month for x months.

- i) Which club charges the most per month? Club B - 21
- ii) Which club charges the most to join? Club A - 60
- iii) If you wanted to be a member for the next 6 months, which club would be the cheapest? Club C - \$110

8. Which ordered pair is the vertex of $f(x) = x^2 + 6x + 5$?

- A. (-3, -4)
 - B. (-2, -3)
 - C. (-1, 0)
 - D. (0, -5)
- Handwritten notes: $a=1, b=6, x = \frac{-b}{2a} = \frac{-6}{2(1)} = -3$

Is it a minimum or maximum? $y = -4$

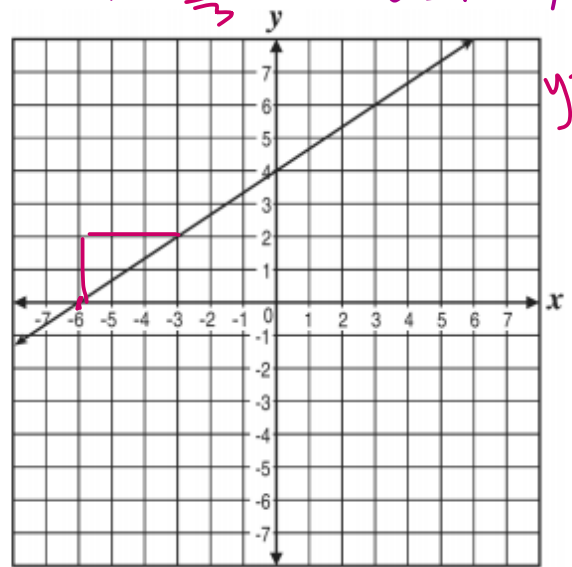
9. What is the vertex of the quadratic function $y = -(x-3)^2 + 4$?

- A. (5, 0)
- B. (0, -5)
- C. (3, 4)
- D. (-3, 4)

Is it a minimum or maximum?

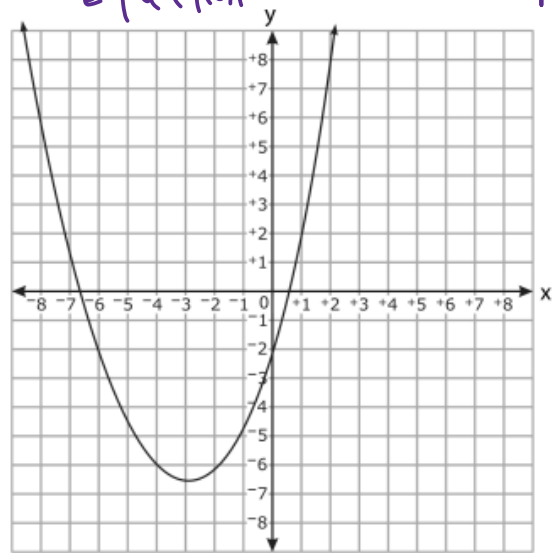
$y = 4$

10. Which equation represents the line shown in the graph below?



- A. $y = \frac{2}{3}x + 4$
- B. $y = \frac{2}{3}x - 6$
- C. $y = \frac{3}{2}x + 4$
- D. $y = \frac{3}{2}x - 6$

11. William wanted to compare the y-intercept of the function $y = 2x^2 + 6x - 3$ with the y-intercept of the function graphed below.



Which has the greater y-intercept and what is it?

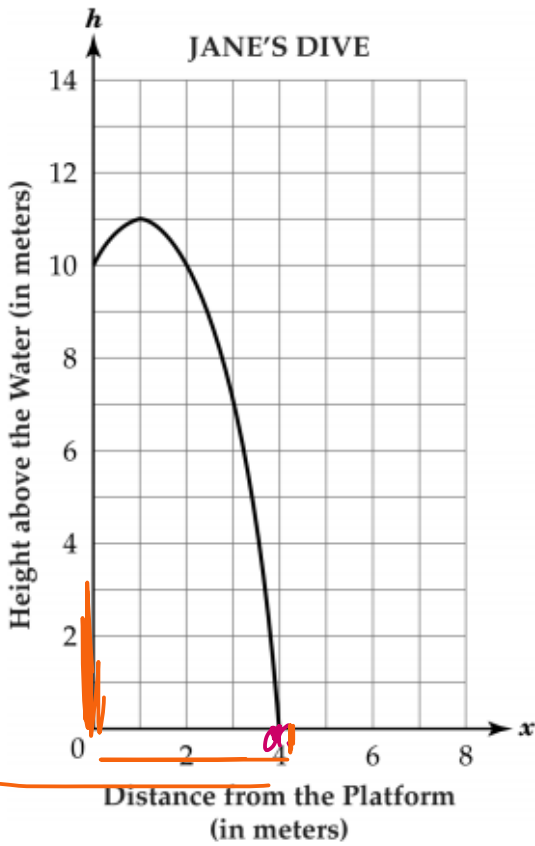
- A) Graph, (0, 2)
- B) Graph, (0, -2)
- C) Equation, (0, 3)
- D) Equation, (0, -3)

Unit 2B/3B Review

Name: _____

vertex = $(-2, -3)$ ↗ ↘

12. Jane dives off a platform into a diving pool. The platform is 10 meters above the water. The graph below shows the relationship between her height above the water and her distance, in meters, from the platform.



How far away from the platform is Jane when she enters the water?

- A. 1 meter B. 4 meters
C. 10 meters D. 11 meters

$$f(2) = -5(2)^2 + 20(2) + 2 = -20 + 40 + 2 = 22$$

13. Pedro throws a ball upward at a rate of 20 meters per second from an initial height of 2 meters. The height of the ball above the ground can be approximated by $h = -5t^2 + 20t + 2$, where t represents the amount of time, in seconds, since the ball has been released.

What is the maximum height that the ball reaches?

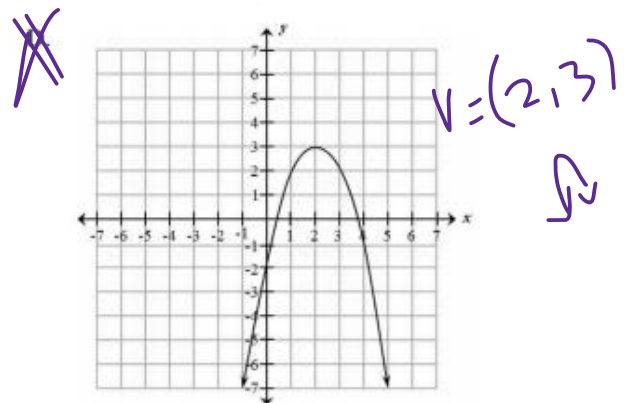
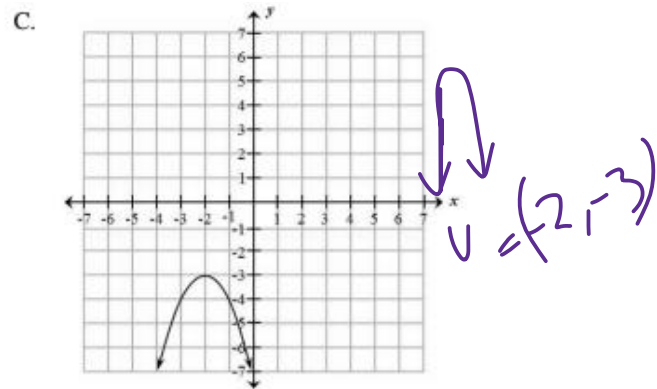
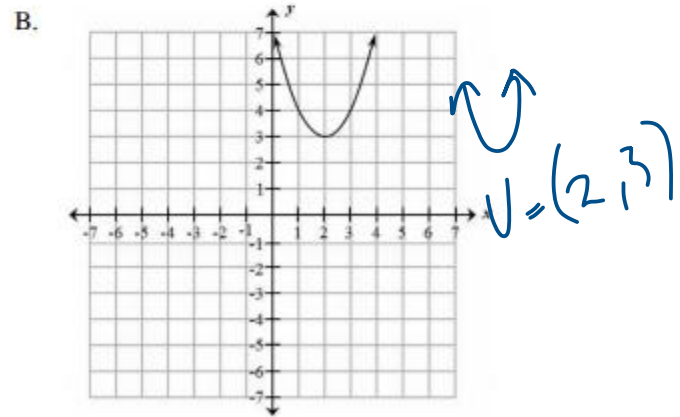
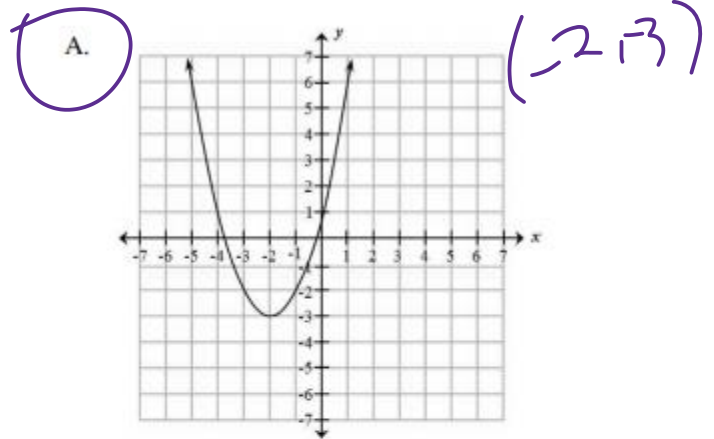
- A. 5 meters B. 6 meters
C. 20 meters D. 22 meters

$$x = \frac{-b}{2a} \quad a = -5 \quad b = 20$$

$$x = \frac{-20}{2(-5)} = 2$$

$$y =$$

14. Which graph best represents $y = (x + 2)^2 - 3$?



15. Graph in vertex form

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

a. Determine your vertex.

Vertex (h, k)

*The sign of h is the opposite

b. Create a table with 2 values to the above and below the vertex.

c. Graph.

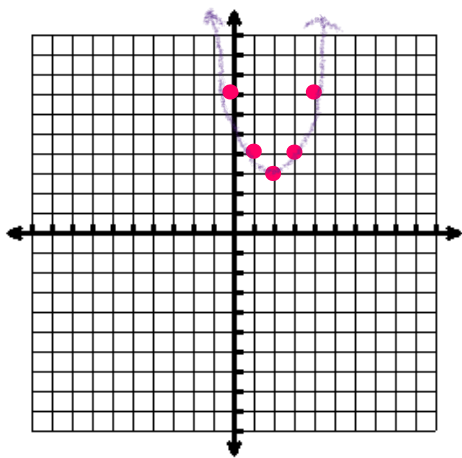
Find the vertex by completing the square and graph: $y = x^2 - 4x + 7$

$$y = x^2 - \frac{4x}{2} + \frac{4}{2} = (-2)^2 = 4$$

$$y = (x^2 - 4x + 4) + 7 - 4$$

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

$$\text{Vertex} = (2, 3)$$



x	y
0	7
1	4
2	3
3	4
4	7

16. Converting to Vertex Form by Completing the Square

a. $y = x^2 + 4x + 5$

$$y = (x^2 + 4x) + 5$$

$$\frac{2}{2} = 2^2 = 4$$

$$y = (x^2 + 4x + 4) + 5 - 4$$

$$y = (x + 2)^2 + 1$$

$$\text{Vertex} = (-2, 1)$$

List the Vertex: ()

b. $y = 2x^2 + 8x - 12$

$$y = \frac{2x^2 + 8x - 12}{2}$$

$$y = (x^2 + 4x) - 6$$

$$\frac{2}{2} = 2^2 = 4$$

$$y = (x^2 + 4x + 4) - 6 - 4$$

$$y = (x + 2)^2 - 10$$

$$\text{Vertex} = (-2, -10)$$

List the Vertex: ()