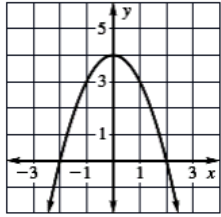


11.2.D1 - LINEAR VS. QUADRATIC FUNCTIONS

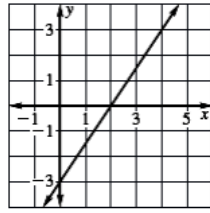
Identify the following functions as: increasing linear, decreasing linear, positive quadratic, or negative quadratic, or neither linear nor quadratic. In problems 9 – 11, you should graph first. Refer to the 11.2 example "Creating & Analyzing Linear & Quadratic Graphs" in the Chapter 11 Summary.

1.



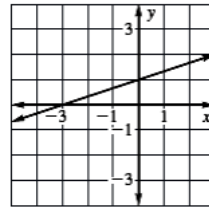
5. $y = -2x - 10$

2.



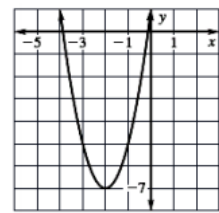
6. $y = 2x^2 + 5x - 7$

3.



7. $y = 5(2)^x$

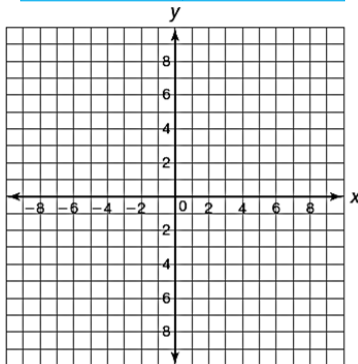
4.



8. $y = -(x + 2)^2$

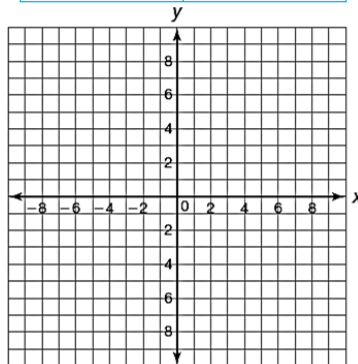
9.

x	y
-2	-8
0	0
2	4
4	4
6	0



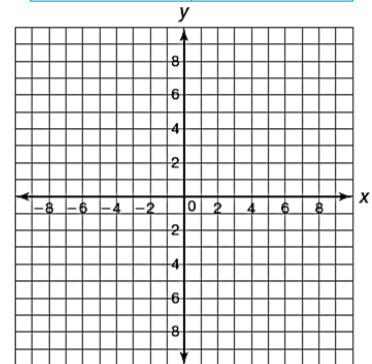
10.

x	y
1	6
2	3
3	0
4	-3
5	-6



11.

x	y
-6	6
-4	0
-2	-2
0	0
2	6



Decide whether each quadratic function has an absolute minimum or an absolute maximum.

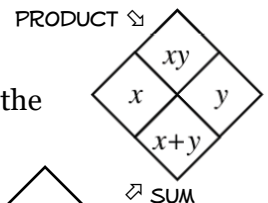
12. $y = -\frac{1}{2}x^2 - 1$

13. $y = x^2 - 3x + 1$

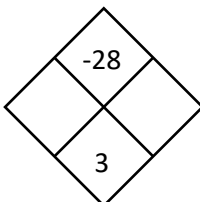
13. $y = -5x(2 - x)$

14. $y = 2x(1 - x)$

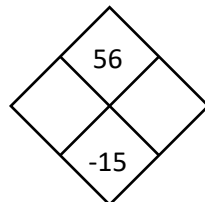
An X-box is a pattern for which the product of two numbers is placed on top, while the sum of the same two numbers is placed on the bottom. This pattern is demonstrated in the X-box at right. Copy and complete each X-box pattern below.



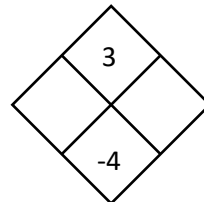
15.



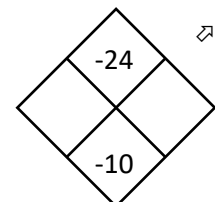
16.



17.



18.



1ST SEMESTER SPIRAL REVIEW – Refer to your 1st semester summary card.

19. Alex saved \$65. He has already spent \$25. He plans to spend \$8 on a movie ticket each month. Write an **inequality** (in one variable) that represents the number of movie tickets, m , he can buy. How many movies can Alex see?
20. What is the y -intercept for the **linear** function $4x - 3y = -18$?
21. The math club raised \$288 for a pizza party. Pizza Pi sells large pizzas for \$12 and orders of breadsticks for \$8. Let x represent the number of pizzas and let y represent the number of orders of breadsticks. Write a **linear** function, in standard form, that represents this situation.
22. Which of the statements about the graph of the **linear** function $y = 3x - 0.25$ are true? Select ALL that apply.
- a. The line passes through $(1, 2.75)$.
 - b. The slope of the line is 3.
 - c. The y -intercept is 3.
 - d. The line passes through $(0.5, 1.25)$.
 - e. The slope of the line is -0.25 .
 - f. The y -intercept is -0.25 .
23. Which of the following systems of equations has the ordered pair $(-1, 5)$ as its solution or as one of its solutions? Select ALL that apply.
- a. $\begin{cases} 5x + y = 0 \\ 5x + y = -9 \end{cases}$
 - b. $\begin{cases} 5x - y = 0 \\ y = 2x + 7 \end{cases}$
 - c. $\begin{cases} x + y = 4 \\ y = 3x + 8 \end{cases}$
 - d. $\begin{cases} 5x + y = 0 \\ -5x - y = 0 \end{cases}$
 - e. $\begin{cases} x - y = 4 \\ -2x + 6y = 4 \end{cases}$
 - f. $\begin{cases} 3x - y = -8 \\ 4x + 3y = 11 \end{cases}$
24. Tickets to a concert cost \$29.50 each, with a \$1.95 service charge per ticket and a \$8.50 charge per order.
- a. Write a function that gives the total cost, C , as a **linear** function of the number of tickets purchased, x .
 - b. What is the total cost if 4 tickets are purchased?
25. Travis bought a guitar for \$840. Each year the guitar's value increases by 10%.
- a. Write a function that models the guitar's value, V , as an **exponential** function of the age in years, x .
 - b. What is the guitar's value in 10 years?
26. What is the common differences for the sequence 2.1, 1.8, 1.5, 1.2, ...?