PART 1

DIRECTIONS: For #1-3, use the following set of ordered pairs to answer the questions.

(6, 3), (–2, 4), (–2, 5), (1, 3), (–7, –2), (–3, 0)

1. What is the domain?

_____

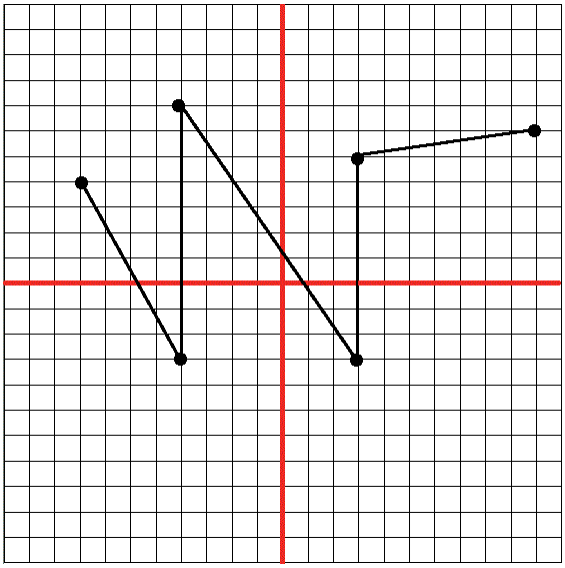
2. What is the range?

_____

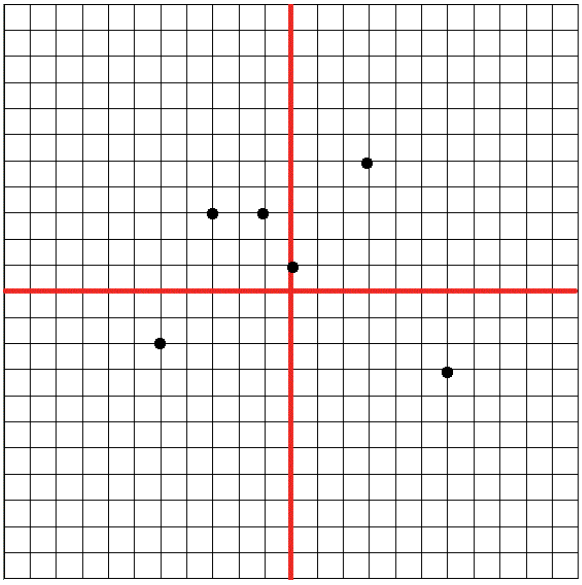
3. Is this a relation a function (**YES** or **NO**)? _____

DIRECTIONS: For #4-5, use the following graphs to determine whether or not the relations are functions. Write **YES** or **NO** in the provided blanks.

4. _____



5. _____



DIRECTIONS: For #6-7, evaluate the following functions for the given values of x. Show all work.

6. $f(x) = |6x + 4|; f(-5)$

_____

7. $f(x) = \frac{2}{7}x - 4; f(21)$

_____

DIRECTIONS: For #8-10, evaluate the following functions for the given values of x. Show all work.

$$f(x) = x^2 + 1 \qquad g(x) = x - 4$$

8. $f(g(5))$ **9.** $g(f(3))$ **10.** $f(f(4))$

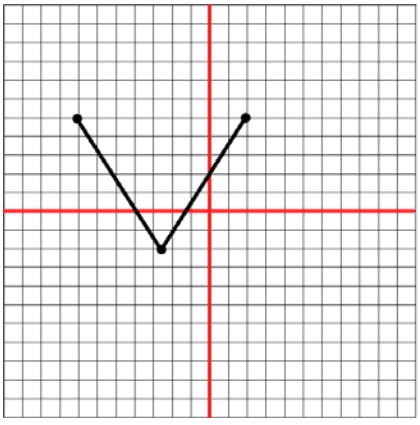
_____ _____ _____

DIRECTIONS: For #11-13, state the domains for the following functions.

11. $f(x) = \frac{7}{(x-9)(x+3)}$ **12.** $f(x) = \sqrt{3x+6}$

_____ _____

13.



_____

DIRECTIONS: For #14-15, write linear functions with the given slopes and function values.

14. $m = -2\,, f(0) = 4$ _____

15. $m = \frac{3}{4}\,, f(12) = 5$ _____

DIRECTIONS: For #16, write a linear function, f, using the given information. Show all work.

16. $f(2) = 5\ ,\ \ f(6) = -7$ _____

DIRECTIONS: For #17, you are provided two values of a linear function. Find the third value. Show all work

17. $f(1) = -1\ ,\ \ f(8) = 3\,;$ Find $f(28)$ _____

DIRECTIONS: For #18-19, use linear functions to solve. Show all work. Remember to label your answers.

18. Garfield caters lasagna dinners for wedding receptions. He charges $675 for 50 guests and $1875 for 150 guests. How much will he charge for 400 guests?

_____

19. A load of 9 kg stretches a coil spring to a length of 63 cm, and a load of 15 kg stretches it to a length of 81 cm. Find the length of the spring when there is no load.

_____

PART 2

DIRECTIONS: For #20-21, evaluate the following function for the given values of x. Show all work.

$$f(x) = \begin{cases} \frac{2}{3}x - 4, & if\ x \leq 3 \\ -x + 8, & if\ x > 3 \end{cases}$$

20. $f(-9)$

21. $f(6)$

_____ _____

DIRECTIONS: For #22-27, match the piecewise functions with the correct graphs. Write the CAPITAL LETTERS of the correct graphs in the blanks.

22. $f(x) = \begin{cases} -2x + 2, & if\ x < 0 \\ x, & if\ x \geq 0 \end{cases}$

_____

23. $f(x) = \begin{cases} x + 1, & if\ x \leq 2 \\ -2x - 1, & if\ x > 2 \end{cases}$

_____

24. $f(x) = \begin{cases} 4 & if\ x \leq 0 \\ x - 1, & if\ x > 0 \end{cases}$

_____

25. $f(x) = \begin{cases} 2x + 2, & if\ x < -2 \\ x, & if\ x \geq -2 \end{cases}$

_____

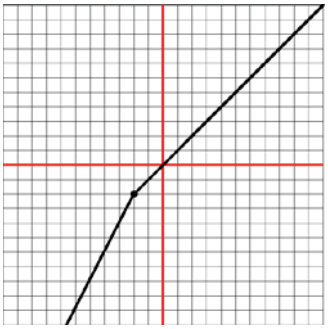
26. $f(x) = \begin{cases} 2x - 1, & if\ x \leq 2 \\ 4, & if\ x > 2 \end{cases}$

_____

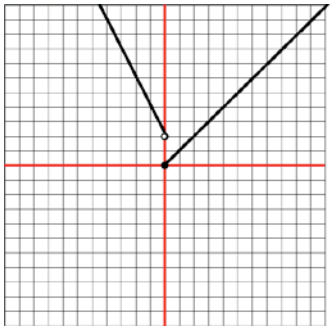
27. $f(x) = \begin{cases} 2x + 3, & if\ x < 2 \\ 2x - 3, & if\ x \geq 2 \end{cases}$

_____

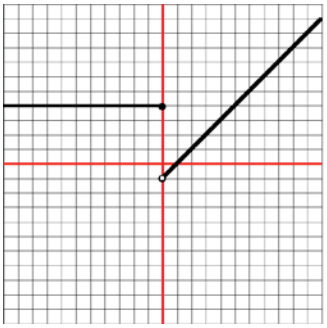
A



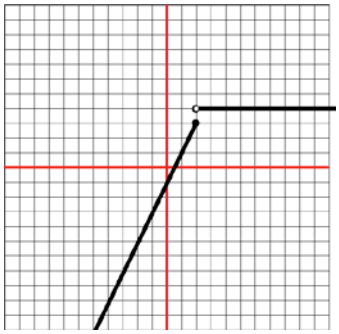
B



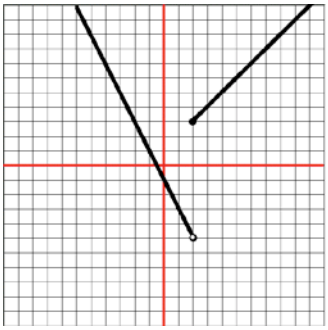
C



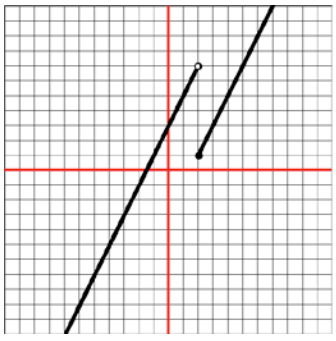
D



E

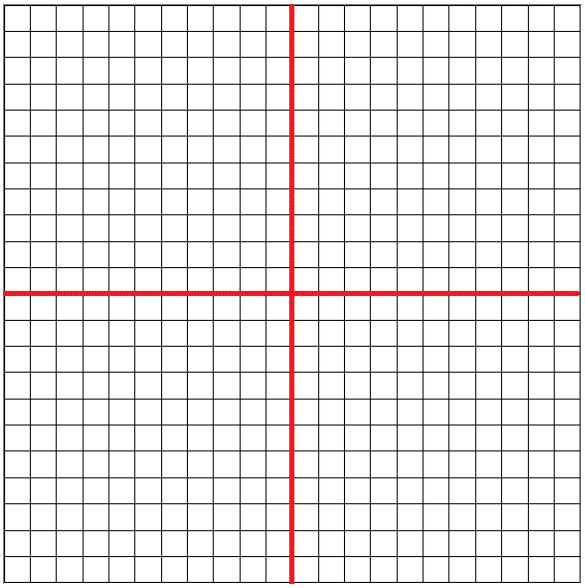


F

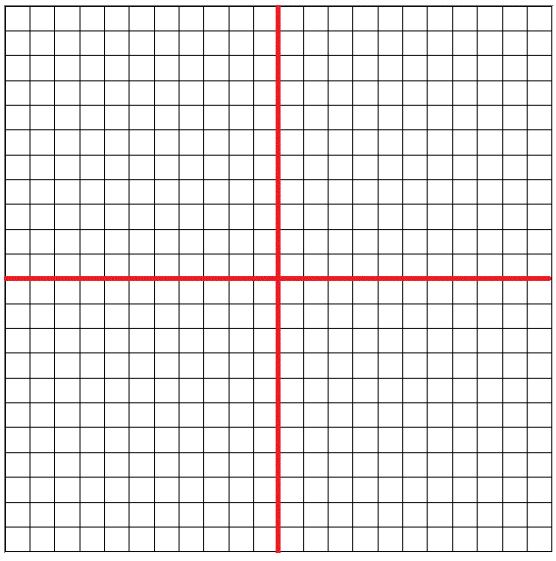


DIRECTIONS: For #28-29, graph the piecewise functions. Use a straightedge (such as a ruler) to make lines

28. $f(x) = \begin{cases} \frac{1}{2}x - 3, & if\ x < -4 \\ -\frac{1}{4}x + 2, & if\ x \geq -4 \end{cases}$

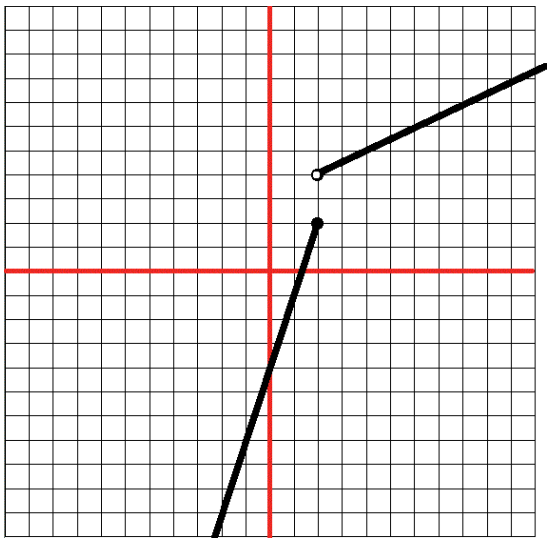


29. $f(x) = \begin{cases} -\frac{1}{3}x, & if\ x < -3 \\ 1, & if\ -3 \leq x \leq 4 \\ -\frac{1}{2}x + 3, & if\ x > 4 \end{cases}$

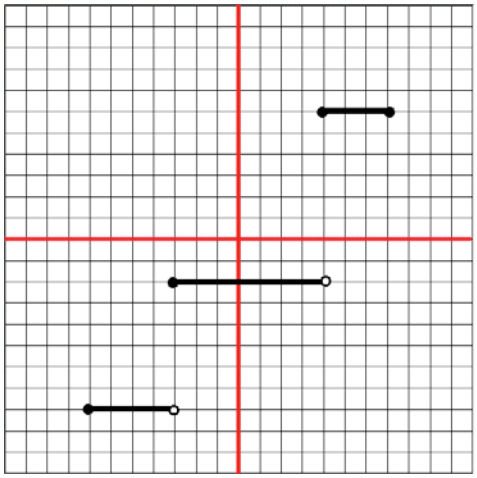


DIRECTIONS: For #30-31, write piecewise functions for the given graphs.

30. _____



31. _____



DIRECTIONS: For #32-35, use the following absolute value function to answer the questions and create a graph.

$$y = -\frac{2}{3}|x - 4| + 1$$

32. What point is the vertex?

_____

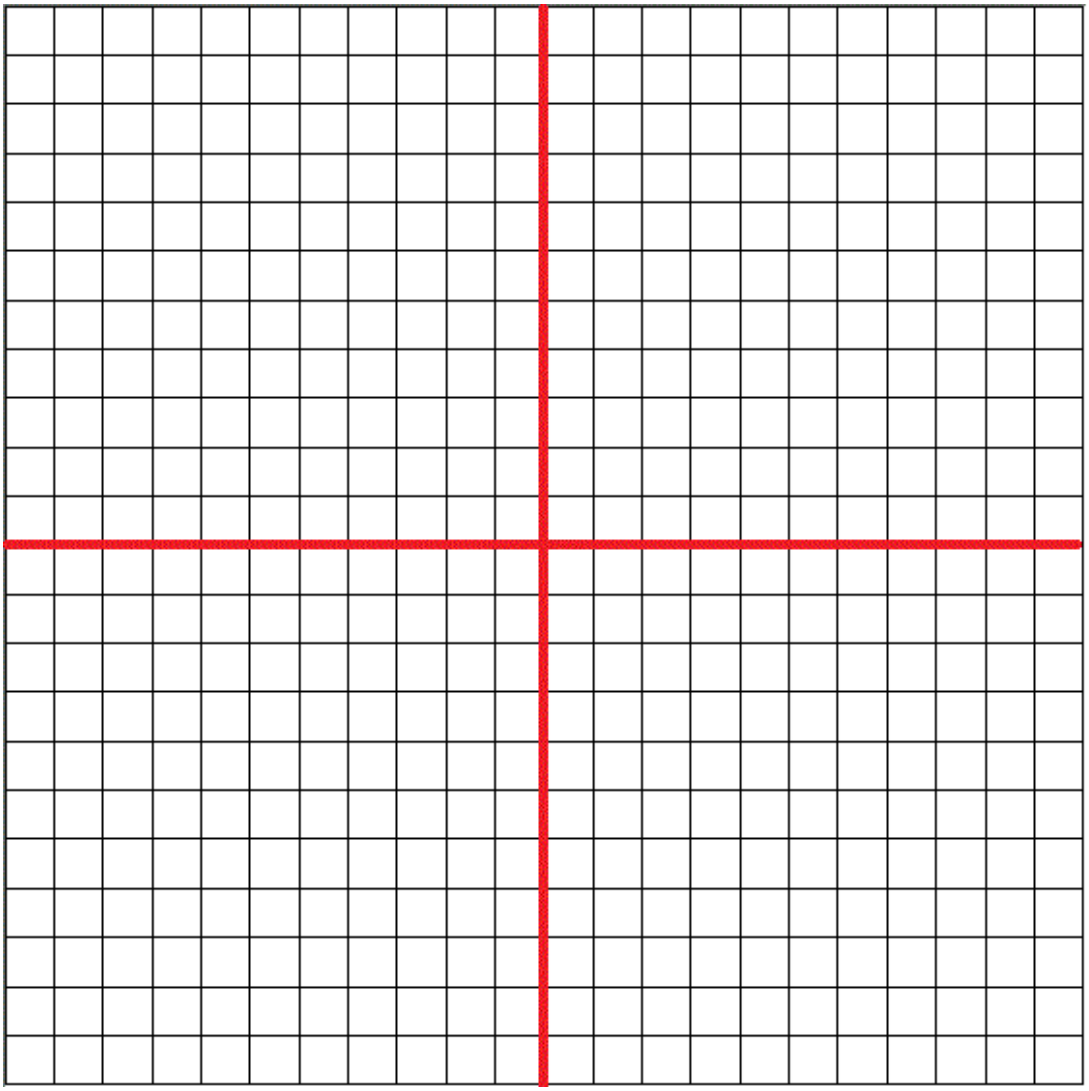
33. Will the graph open UP or DOWN?

_____

34. Will the graph be WIDER, NARROWER, or the SAME width as $y = |x|$?

_____

35. Graph the function.



DIRECTIONS: For #36-39, use the following absolute value function to answer the questions and create a graph.

$$y = 2|x + 1| - 2$$

36. What point is the vertex?

_____

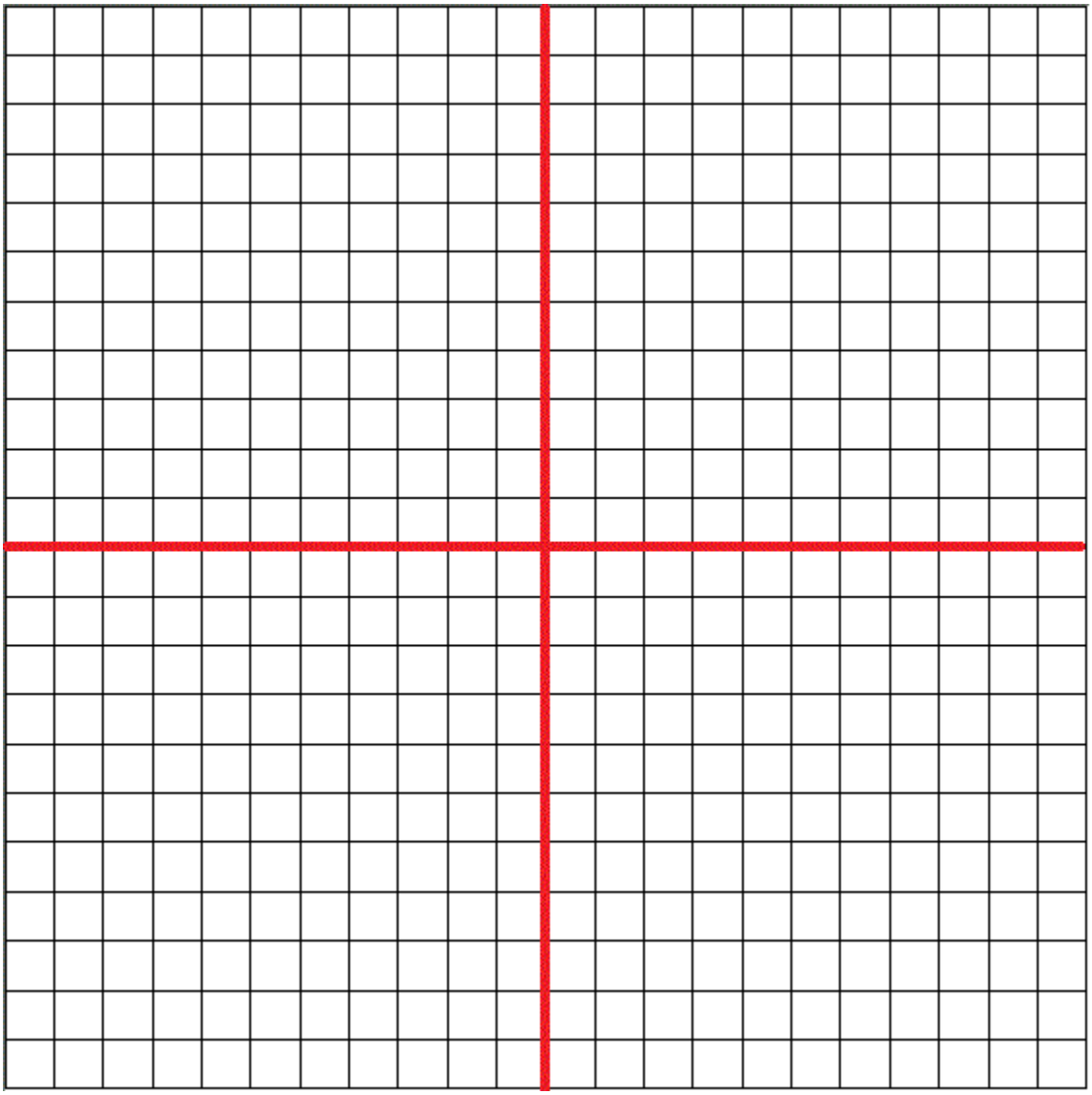
37. Will the graph open UP or DOWN?

_____

38. Will the graph be WIDER, NARROWER, or the SAME width as $y = |x|$?

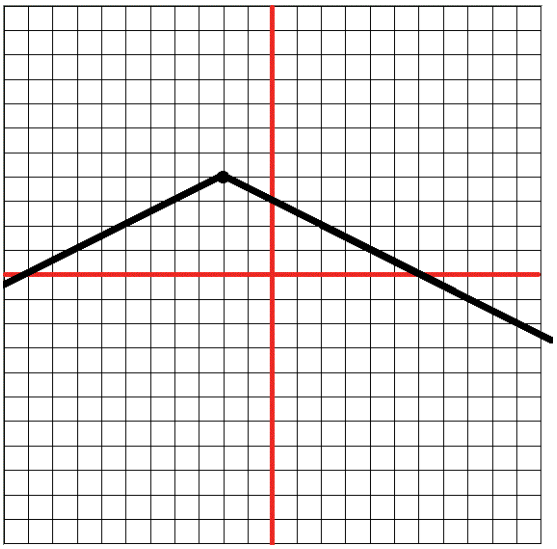
_____

39. Graph the function.



DIRECTIONS: For #40-41, write the absolute value functions shown on the graphs.

40. _____



41. _____