

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?

$\{-7, -3, -2, 1, 6\}$

2. What is the range?

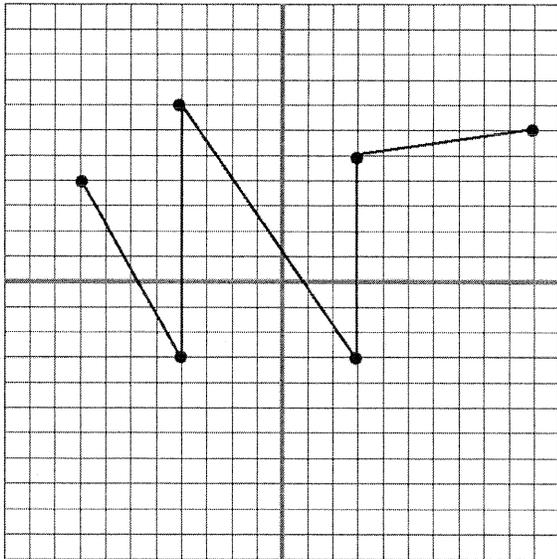
$\{-2, 0, 3, 4, 5\}$

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

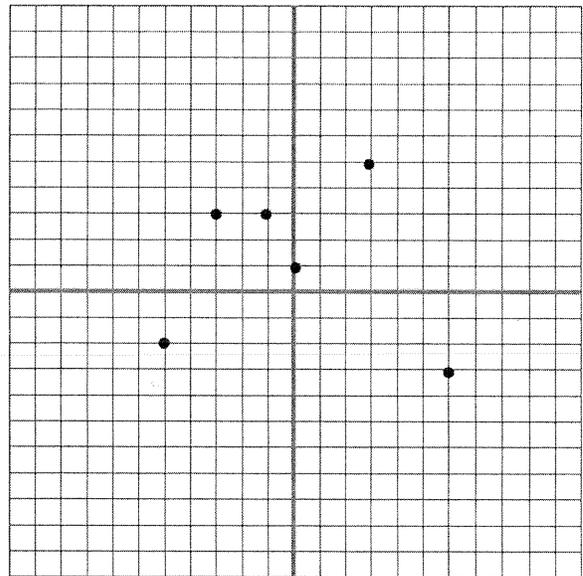
No

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. No



5. Yes



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

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

26

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

2

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

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

8. $f(g(5))$

9. $g(f(3))$

10. $f(f(4))$

26290

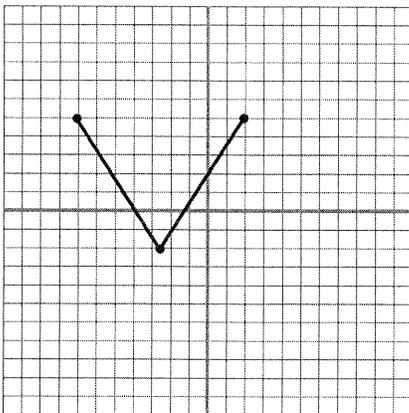
DIRECTIONS: For #11-13, state the domains for the following functions.

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

12. $f(x) = \sqrt{3x+6}$

 $x \neq -3, 9$ $x \geq -2$

13.

 $-7 \leq x \leq 2$

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

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

$$\underline{f(x) = -2x + 4}$$

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

$$\underline{f(x) = \frac{3}{4}x - 4}$$

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

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

$$\underline{f(x) = -3x + 11}$$

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 $f(28)$

$$\underline{\frac{101}{7} \text{ or } 14\frac{3}{7}}$$

$$f(x) = \frac{4}{7}x - \frac{11}{7}$$

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?

\$ 4875

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.

36 kg

PART 2

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

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

20. $f(-9)$

21. $f(6)$

-102

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

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

B

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

A

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

E

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

D

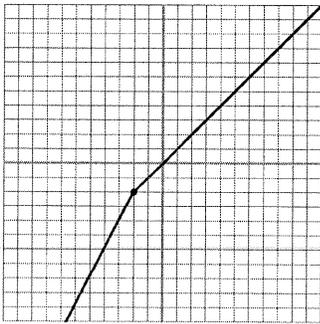
$$24. f(x) = \begin{cases} 4 & \text{if } x \leq 0 \\ x - 1, & \text{if } x > 0 \end{cases}$$

C

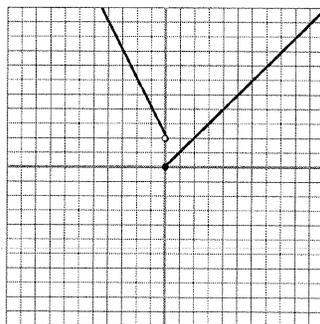
$$27. f(x) = \begin{cases} 2x + 3, & \text{if } x < 2 \\ 2x - 3, & \text{if } x \geq 2 \end{cases}$$

F

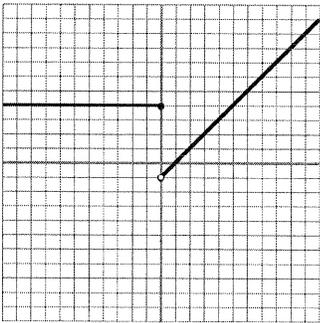
A



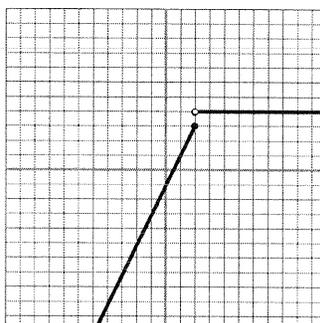
B



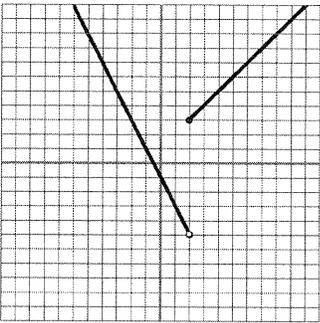
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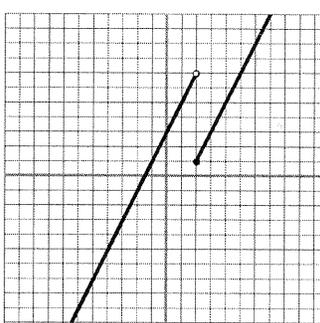
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E

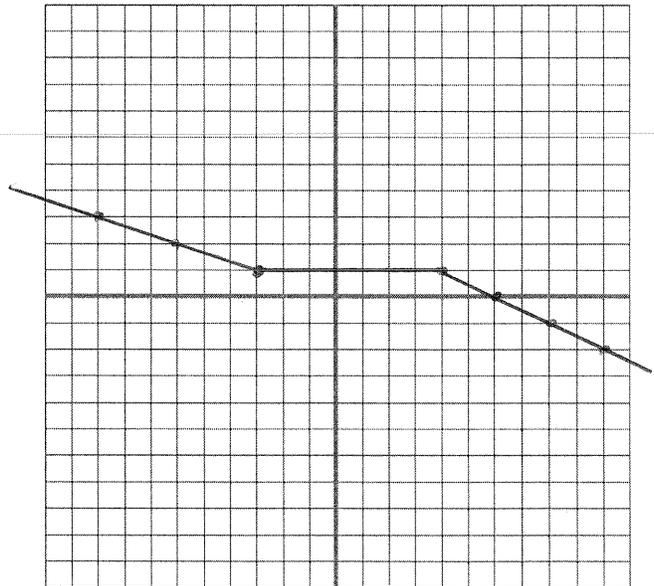
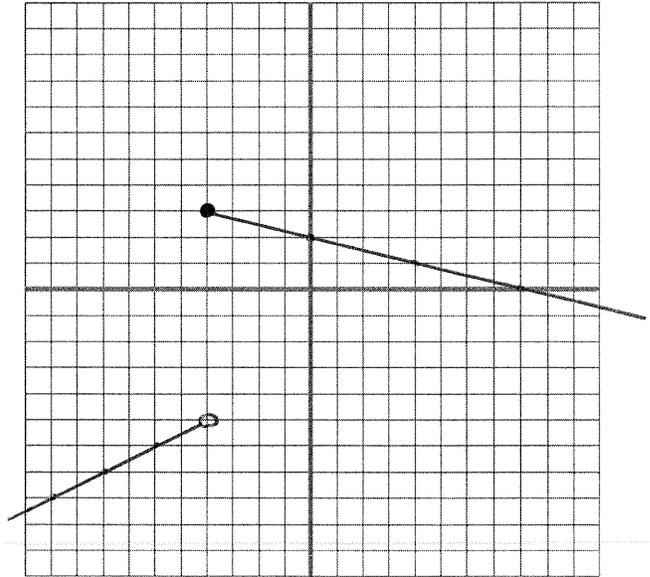


F



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

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

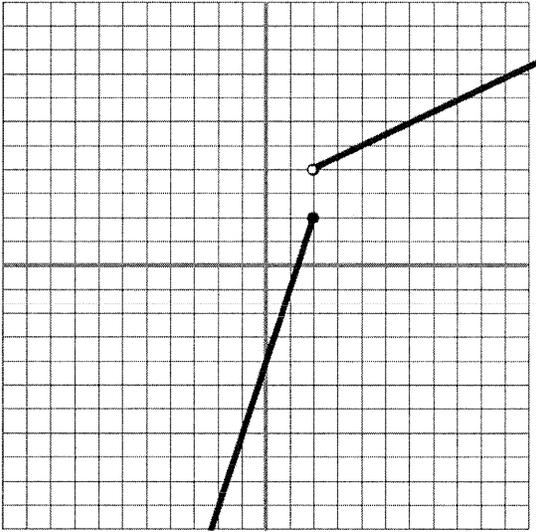


$$29. f(x) = \begin{cases} -\frac{1}{3}x, & \text{if } x < -3 \\ 1 & \text{if } -3 \leq x \leq 4 \\ ~~-\frac{1}{2}x~~ & \text{if } x > 4 \\ -\frac{1}{2}x + 3 & \text{if } x > 4 \end{cases}$$

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

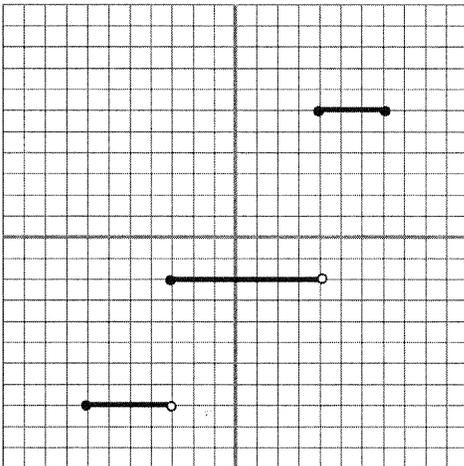
$$f(x) = \begin{cases} 3x - 4 & \text{if } x \leq 2 \\ \frac{1}{2}x + 3 & \text{if } x > 2 \end{cases}$$

30. _____



31. _____

$$f(x) = \begin{cases} -8 & \text{if } -7 \leq x < -3 \\ -2 & \text{if } -3 \leq x < 4 \\ 6 & \text{if } 4 \leq x \leq 7 \end{cases}$$



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?

(4, 1)

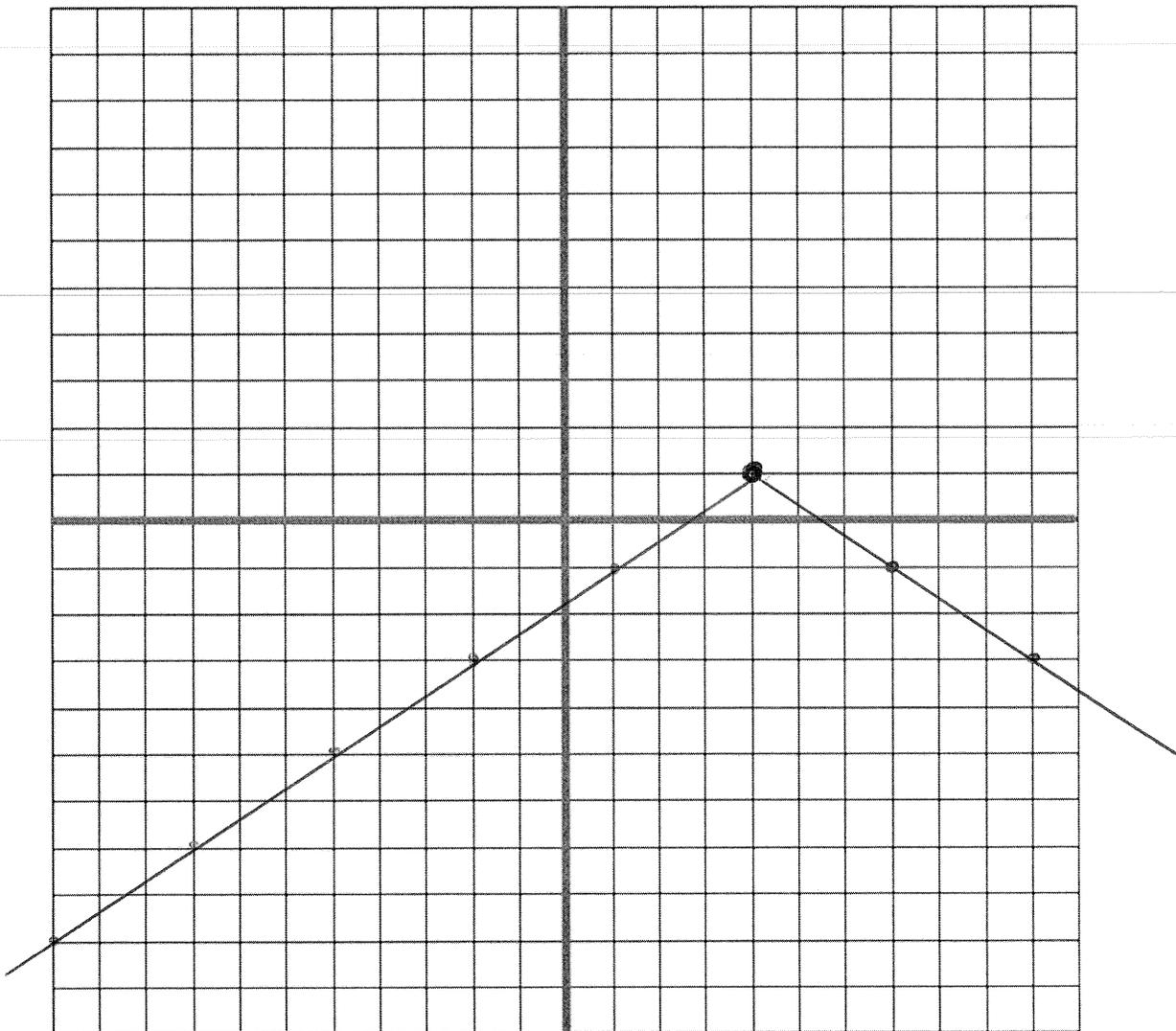
33. Will the graph open UP or DOWN?

DOWN

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

WIDER

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?

$(-1, -2)$

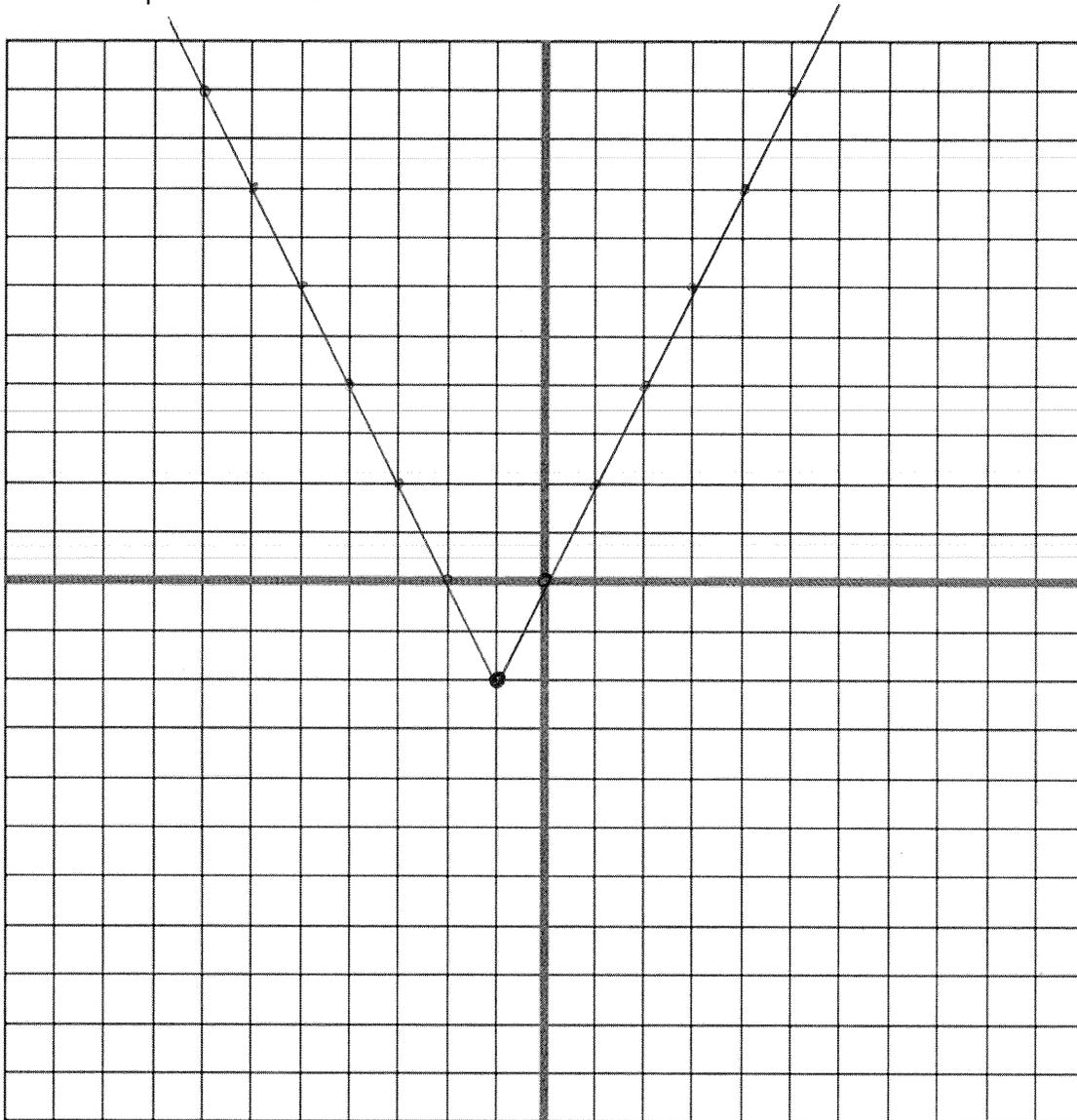
37. Will the graph open UP or DOWN?

UP

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

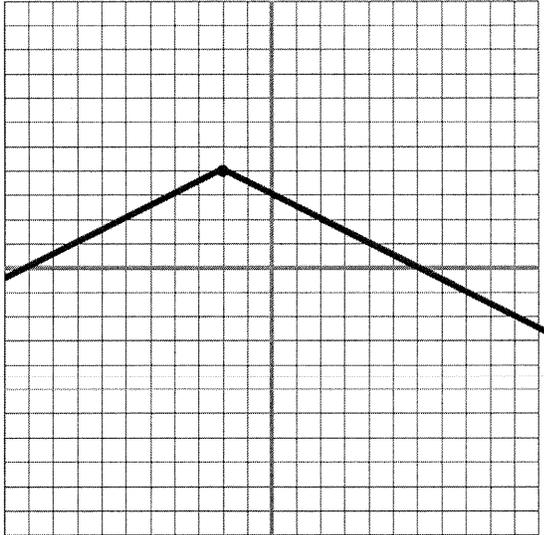
NARROWER

39. Graph the function.



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

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



41. $y = 2|x-3| - 5$

