Use this relation for #1-3: $(4,6),(8,-7),(2,12),(3,-7),(-1,-4)$

1. What is the domain?

$\{-1,2,3,4,8\}$

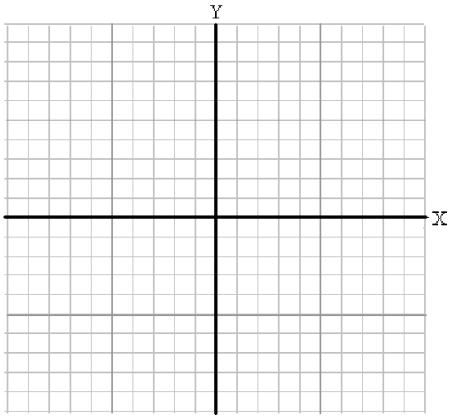
2. What is the range?

$\{-7,-4,6,12\}$

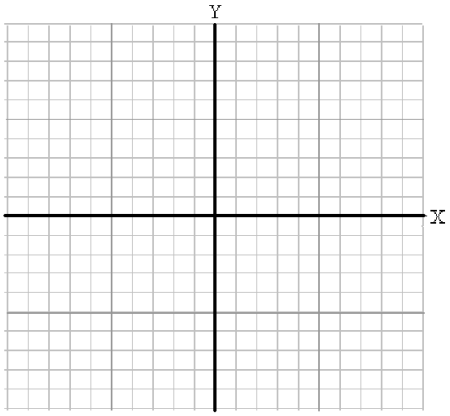
**TIP – Do not repeat numbers when listing members of the domain (or range). You should also arrange the numbers from least to greatest.

3. Is this relation a function? Yes

4. Draw a relation (using lines or points) on this graph that IS a function.



5. Draw a relation (using lines or points) on this graph that is NOT a function.



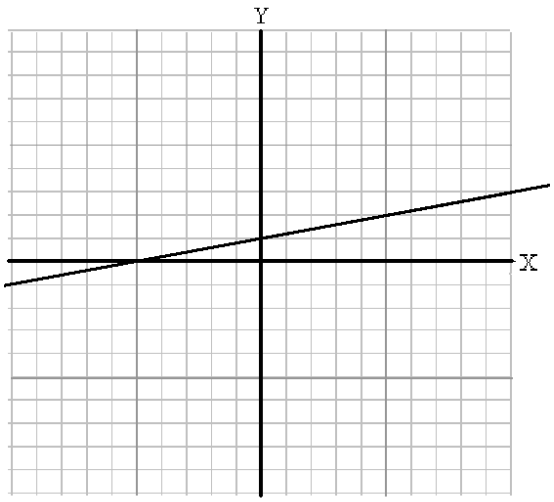
6. Find $f(7)$ if $f(x)=|-3x+6|$.

15

7. Find $f(21)$ if $f(x)=-\frac{4}{7}x+11$.

–1

8. Find the slope of the line on this graph. 1/5



9. Find the slope of a line through the points $(-8,-3)$, & $(-5,18)$.

7

10. Line 1 goes through $(1,-3)$, & $(6,\ 12)$. Line 2 goes through $(-2,1)$, & $(-5,-8)$. Describe the relationship between Line 1 & Line 2 as **parallel**, **perpendicular**, or **neither**.

parallel

11. Write an equation in standard form $(Ax+By=C)$ for a line with a slope of $\frac{2}{3}$ that goes through the point $(5,6)$. $2x-3y=-8$

12. Write an equation in standard form $(Ax+By=C)$ for a line that contains the points $(5,7)$ & $(-3,3)$. $x-2y=-9$

13. Write an equation in standard form $(Ax+By=C)$ for a line that contains the point $(2,7)$ and is perpendicular to the line $y=-\frac{1}{6}x+8$.

$6x-y=5$

Use this for #14-15: $f(x)=\begin{cases}\frac{1}{2}x+3, & if\ x\le 8\\ 4x+11, & if\ x>8\end{cases}$

14. Find $f(-2)$. 2

15. Find $f(12)$. 59

Use this absolute value function for #16-18: $y = -\frac{5}{6}|x + 8| + 9$

16. What point is the vertex? $(-8, 9)$

17. Will the graph open UP or DOWN? Down

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

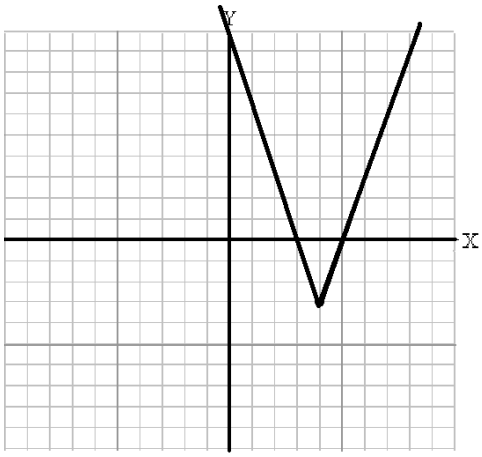
Use this absolute value function for #19-21: $y = -2|x - 4| - 1$

19. What point is the vertex? $(4, -1)$

20. Will the graph open UP or DOWN? Down

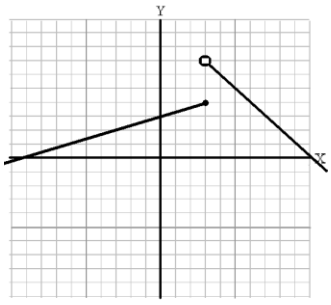
21. Will the graph be WIDER, NARROWER, or the SAME width as $y = |x|$? Narrower

22. Write an equation for the function shown in the graph (you can tell it's an absolute value function because it is shaped like a symmetric "V"). $y = 3|x - 4| - 3$

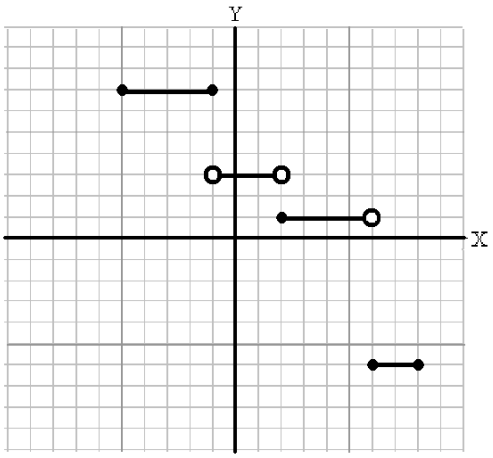


23. Write an equation for the piecewise function shown in the graph.

$$f(x) = \begin{cases} \frac{1}{3}x + 3, & \text{if } x \leq 3 \\ -x + 10, & if\ x > 3 \end{cases}$$



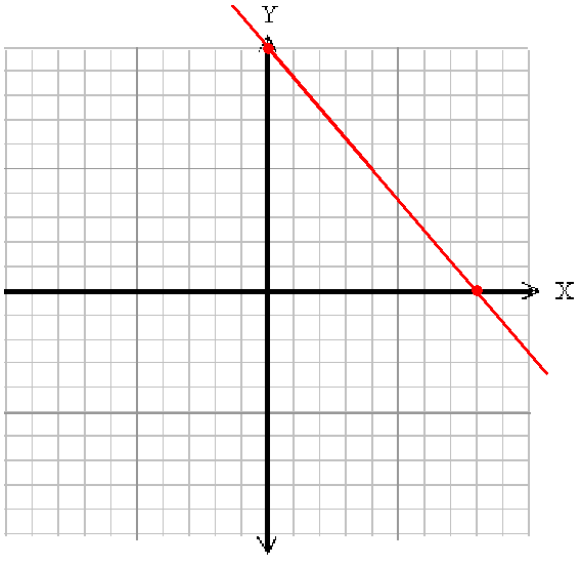
24. Write an equation for the step function shown in the graph.



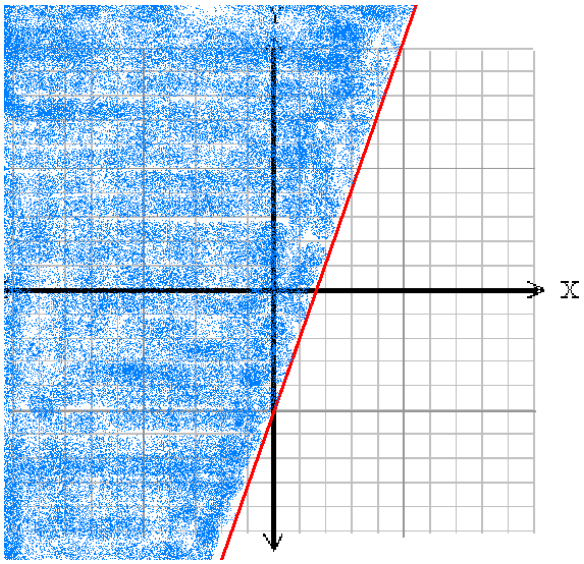
$$f(x) = \begin{cases} 7, & if\ -5 \le x \le -1 \\ 3, & if\ -1 < x < 2 \\ 1, & if\ 2 \le x < 6 \\ -6, & if\ 6 \le x \le 8 \end{cases}$$

**TIP- You must use a straightedge (like a ruler) on the test, so you should use one here, too. Look out for solid or dashed lines when graphing inequalities.

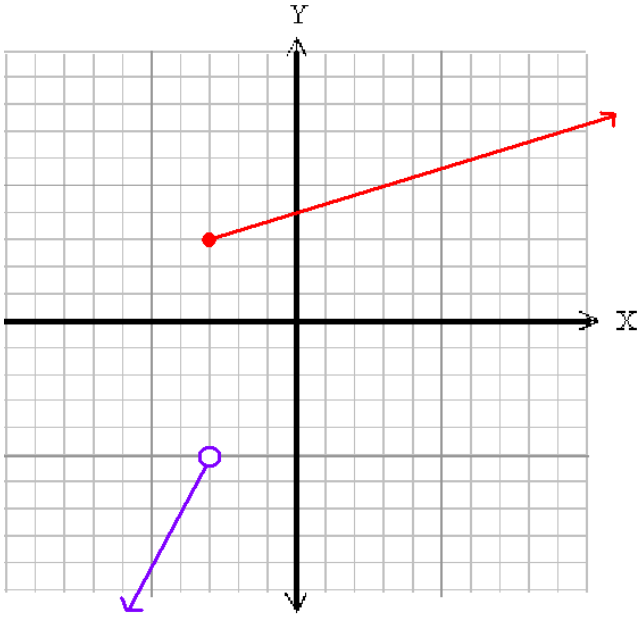
25. Graph the equation $5x + 4y = 40$.



26. Graph the inequality $y \ge 3x - 5$.



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



28. Graph the absolute value function $y = -3|x+1| + 6$.