PROBLEM SET 2-1
(Relations and Functions)

Graph each relation.

1. $\{(-1,3),(-2,1),(-3,-3),(-4,-5)\}$

2. $\left\{(-1,0),\left(\frac{1}{2},-1\right),\left(0,\frac{1}{2}\right),\left(-1,-\frac{1}{2}\right)\right\}$

Make a mapping diagram for each relation.

3. $\{(-2,8),(-1,1),(0,0),(1,1),(2,8)\}$

4. $\{(5,10),(10,5),(15,20),(20,15)\}$

Determine whether each relation is a function.

5. $\{(1,1),(2,2),(3,5),(4,10),(5,15)\}$

6. $\left\{\left(-3,\frac{2}{5}\right),\left(-2,\frac{3}{5}\right),\left(\frac{3}{2},-5\right),\left(5,\frac{2}{5}\right)\right\}$

For each function, find $f(-5)$, $f(-3)$, $f\left(\frac{1}{2}\right)$, *and* $f(4)$

7. $f(y) = -3y - 2$

8. $f(x) = -x - 7$

9. $f(x) = 2x - 3$

10. $f(x) = \frac{5}{6}x + \frac{1}{3}$

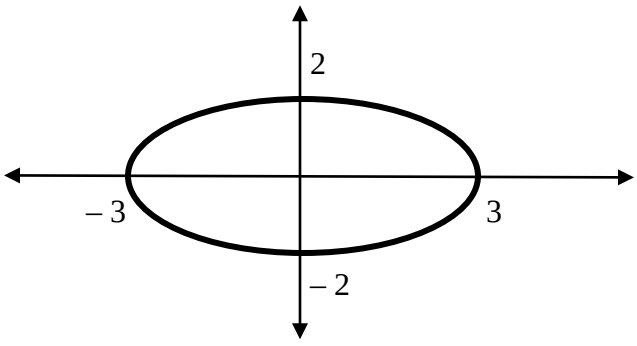
State the domain and range of each relation and determine whether it's a function.

11. $\{(-1,1),(-2,2),(-3,3),(-4,4)\}$

12. $\left\{\left(\frac{3}{2},-\frac{1}{2}\right),\left(\frac{5}{2},\frac{1}{2}\right),\left(\frac{1}{2},\frac{1}{2}\right),\left(-\frac{3}{2},\frac{1}{2}\right)\right\}$

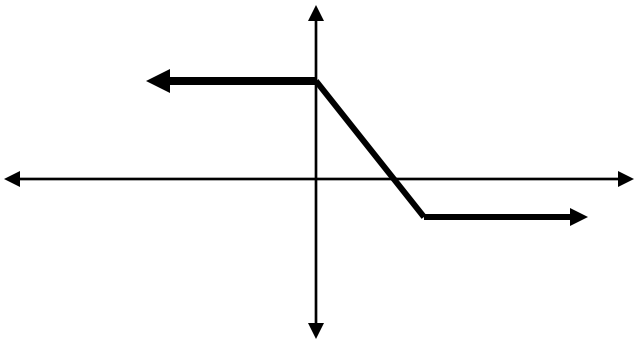
13. $\{(-1,2),(-2,5),(-2,7),(0,2),(9,2)\}$

14.

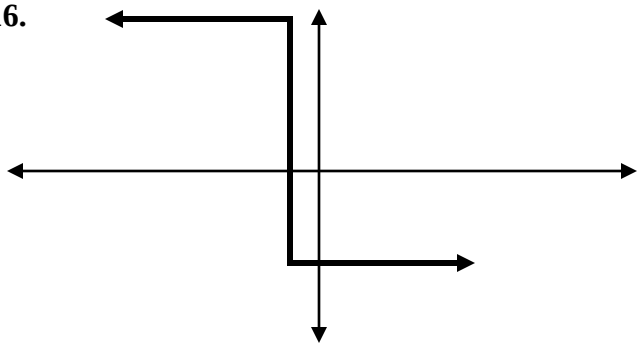


Determine whether each graph represents *y* as a function of *x*.

15.



16.



Suppose $f(x)=2x+5$ **and** $g(x)=-\frac{1}{3}x+2$**. Find the value of each.**

17. $f(-4)$ **18.** $2g(7)$ **19.** $-2f(x+1)$ **20.** $\frac{f(1)}{g(3)}$

21. $\frac{f(-2)}{g(f(-2)+1)}$