

Name KEY

For each equation:

A. Determine whether the equation is a function.

B. If it is a function, find the domain and range (using technology to assist)

✓ 1. $y = x^2$

Yes

D: $(-\infty, \infty)$

R: $[0, \infty)$

✓ 2. $x = y^2$

No

✓ 3. $y = |x|$

Yes

D: $(-\infty, \infty)$

R: $[0, \infty)$

✓ 4. $y = x^3$

Yes

D: $(-\infty, \infty)$

R: $(-\infty, \infty)$

✓ 5. $\frac{x^2}{16} + \frac{y^2}{25} = 1$

No

✓ 6. $y = \sqrt{25 - x^2}$

Yes

$25 - x^2 \geq 0$

$25 \geq x^2$

D: $[-5, 5]$

R: $[0, 5]$

✓ 7. $y = \frac{4}{x}$

Yes

D: $(-\infty, 0) \cup (0, \infty)$

R: $(-\infty, 0) \cup (0, \infty)$

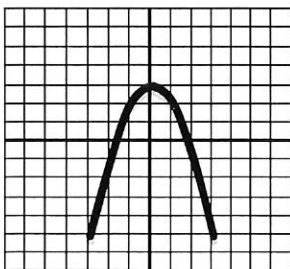
✓ 8. $y = \sqrt{x - 2}$

Yes

D: $[2, \infty)$

R: $[0, \infty)$

✓ 9.

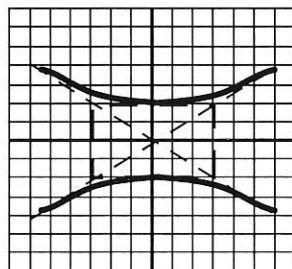


Yes

D: $(-\infty, \infty)$

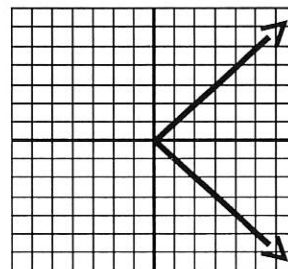
R: $(-\infty, -3]$

✓ 10.



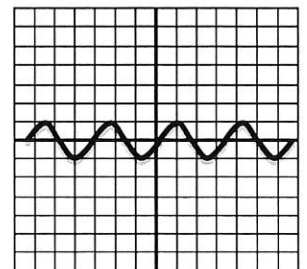
No

✓ 11.



No

✓ 12.



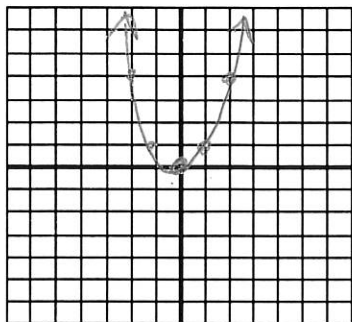
Yes

D: $(-\infty, \infty)$

R: $[-1, 1]$

Graph each function using a table of values. Be sure to use positive and negative values. Pay attention to similarities in the equations that lead to similarities in the graphs. Find the domain and range.

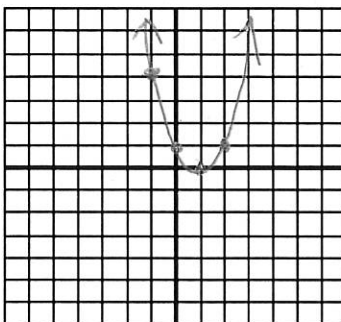
✓ 13. $f(x) = x^2$



x	f(x)
0	0
0	0
-1	1
1	1
2	4

$D: (-\infty, \infty)$
 $R: [0, \infty)$

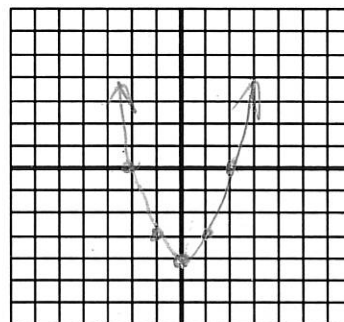
✓ 14. $f(x) = (x-1)^2$



x	f(x)
1	0
0	1
-1	4
2	1
-2	9

$D: (-\infty, \infty)$
 $R: [0, \infty)$

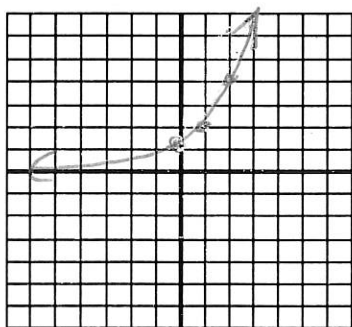
✓ 15. $f(x) = x^2 - 4$



x	f(x)
2	0
0	-4
-2	0
1	-3
-1	-3

$D: (-\infty, \infty)$
 $R: [-4, \infty)$

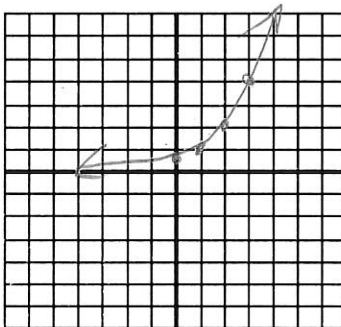
✓ 16. $f(x) = 2^x$



x	f(x)
undef	0
0	1
1	2
2	4
3	8

$D: (-\infty, \infty)$
 $R: (0, \infty)$

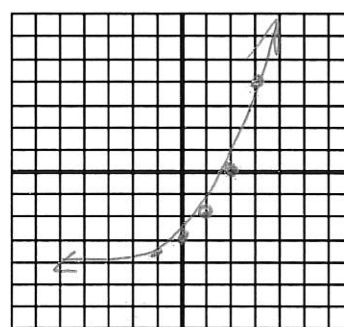
✓ 17. $f(x) = 2^{x-1}$



x	f(x)
undef	0
0	1/2
1	1
2	2
3	4

$D: (-\infty, \infty)$
 $R: (0, \infty)$

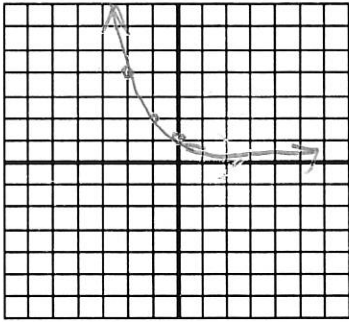
✓ 18. $f(x) = 2^x - 4$



x	f(x)
2	0
0	-3
1	-2
3	4
-1	-3.5

$D: (-\infty, \infty)$
 $R: (-4, \infty)$

$$\checkmark 19. f(x) = \left(\frac{1}{2}\right)^x$$

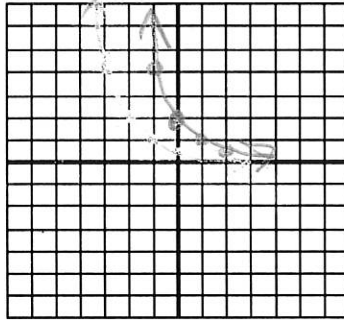


x	f(x)
undef	0
0	1
-1	2
-2	4
-3	8

$$D: (-\infty, \infty)$$

$$R: (0, \infty)$$

$$\checkmark 20. f(x) = \left(\frac{1}{2}\right)^{|x-1|}$$

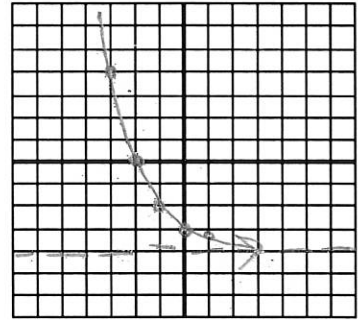


x	f(x)
undef	0
0	2
-1	4
1	1
2	1/2

$$D: (-\infty, \infty)$$

$$R: (0, \infty)$$

$$\checkmark 21. f(x) = \left(\frac{1}{2}\right)^x - 4$$



x	f(x)
-2	0
0	-3
-1	-2
-3	4
1	-3.5

$$D: (-\infty, \infty)$$

$$R: (-4, \infty)$$