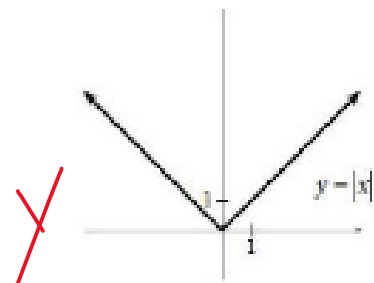
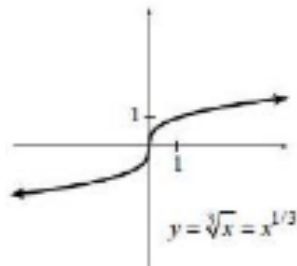
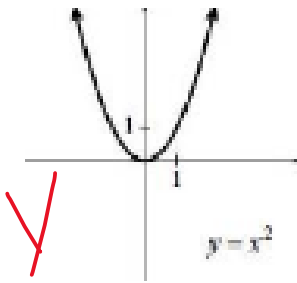


Chapter 1 Functions Test Review

Select all of the following graphs which represent y as a function of x .



Which tables show y as a function of x ?

Table 1

Table 2

Table 3

Table 4

x	$f(x)$	x	$f(x)$	x	$f(x)$	x	$f(x)$
-4	-10	-4	16	-4	-8	-4	-1
-2	-8	-2	4	-2	-4	-2	1
0	-6	0	0	0	0	0	3
2	-4	2	4	2	4	2	5
4	-2	4	16	4	8	4	7
Table 1		Table 2		Table 3		Table 4	

Describe what defining a function as 1 to 1 means:

A 1 to 1 function means that every input of x has exactly one output of y and every output of y has exactly one input of x .

$$f(x) = 5x^4 + x^2$$

$f(4)$

1296

$f(-3)$

414

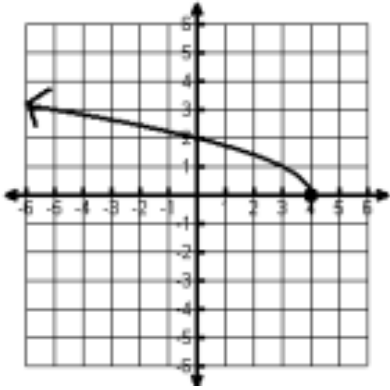
$f(2)$

84

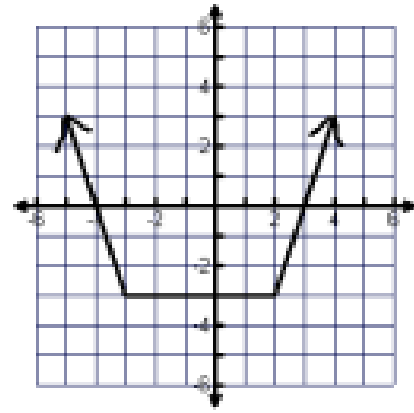
$f(-1)$

6

Write the domain and range of the function using interval notation.



D: $(-\infty, 4]$
R: $[0, \infty)$



D: $(-\infty, \infty)$
R: $[-3, \infty)$

Find the domain of each function

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

$(-\infty, -4) \cup (-4, \infty)$

$$f(x) = \frac{2x}{3x-1}$$

$(-\infty, 1/3) \cup (1/3, \infty)$

$$f(x) = \sqrt{2x-8}$$

$(4, \infty)$

$$f(x) = \frac{\sqrt{x-2}}{5-x}$$

$(2, 5) \cup (5, \infty)$

Find the average rate of change of each function on the interval specified.

$$f(x) = 2x - 5 \text{ on interval } [3, 5]$$

2

$$f(x) = \frac{2}{3}x + 2 \text{ on interval } [-1, 6]$$

2/3

Given $f(x) = 2x - 5$ and $g(x) = x + 2$, find $(f \circ g)(x)$

$$2x - 1$$

Given $f(x) = x - 1$ and $g(x) = x^2 + 2x - 8$, find $(g \circ f)(x)$

$$x^2 - 9$$

Write a formula for $f(x) = x^2$ shifted down 3 units and to the left 2 units and stretched vertically by a factor of 3

$$f(x) = 3(x + 2)^2 - 3$$

Describe how each formula is a transformation of a toolkit function.

$$f(x) = 4(x + 1)^2 - 5$$

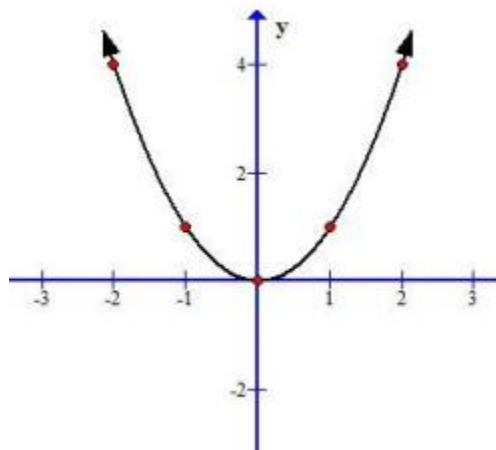
Vertical stretch of 4, shift to the left 1 and down 5 units.

$$p(x) = \left(\frac{1}{3}x\right)^2 - 3$$

Horizontal stretch of $\frac{1}{3}$ and a vertical shift of 3 units down

Using the graph of $f(x)$ shown

- Find $f(0) =$
- Solve $f(x) = 4$
- State the interval on which the function is decreasing
- State the interval on which the function is increasing



a.	b.	c.	d.
0	-2, 2	$(-\infty, 0)$	$(0, \infty)$

For each function below, find $f^{-1}(x)$

$f(x) = (x - 2)^5 + 3$ $\sqrt[5]{x - 3} + 2$	$g(x) = \frac{8 - 5x}{4}$ $\frac{4x - 8}{-5}$ or $\frac{-4x + 8}{5}$
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Given: $f(x) = 2x + 5$; $g(x) = x^2 - 2$; $h(x) = \frac{1}{2}x + 6$

$(f + g)(x)$ $x^2 + 2x + 3$	$(f * h)(x)$ $x^2 + 14.5x + 30$ Or $x^2 + \frac{29}{2}x + 30$	$\frac{f}{g}(x)$ $\frac{2x + 5}{x^2 - 2}$ $x \neq \sqrt{2}$ or $-\sqrt{2}$
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