

1. Explain the difference between  $f(2)$  and  $f(x) = 2$ .

Plug in  
 $x=2$

Make  $y=2$  & solve  
for  $x$ .

2. Let  $f(x) = 4 - 2x$

a) Evaluate  $f(-6)$

$$f(-6) = 4 - 2(-6)$$

$$4 + 12$$

$$16$$

b) Evaluate  $f(3a)$

$$f(3a) = 4 - 2(3a)$$

$$4 - 6a$$

c) Evaluate  $f(t+2)$

$$f(t+2) = 4 - 2(t+2)$$

$$= 4 - 2t - 4$$

$$= -2t$$

d) Solve  $f(x) = 5$

$$4 - 2x = 5$$

$$-4 \quad -4$$

$$-2x = 1$$

$$\frac{-2}{-2} \quad \frac{1}{-2}$$

$$x = -\frac{1}{2}$$

3. Let  $g(x) = x^2 - 7$

a) Evaluate  $g(-3)$

b) Solve  $g(x) = -6$

$$g(-3) = (-3)^2 - 7$$

$$= 9 - 7$$

$$g(-3) = 2$$

$$g(x) = -6$$

$$x^2 - 7 = -6$$

$$+7 \quad +7$$

$$\sqrt{x^2} = \sqrt{1}$$

$$x = 1 \text{ or } x = -1$$

4. Let  $h(x) = (x-2)(x+7)$

a) Evaluate  $h(2)$

b) Evaluate  $h(a)$

$$h(2) = (2-2)(2+7)$$

$$(0)(9)$$

$$h(2) = 0$$

$$h(a) = (a-2)(a+7)$$

5. Let  $f(x) = \frac{8}{x+2}$

a)  $f(14) = \frac{8}{14+2} = \frac{8}{16} = \frac{1}{2}$

a) Evaluate  $f(14)$

b) Evaluate  $f(t)$

b)  $f(t) = \frac{8}{t+2}$

c) Solve  $f(x) = 1$

$$\frac{8}{x+2} = 1$$

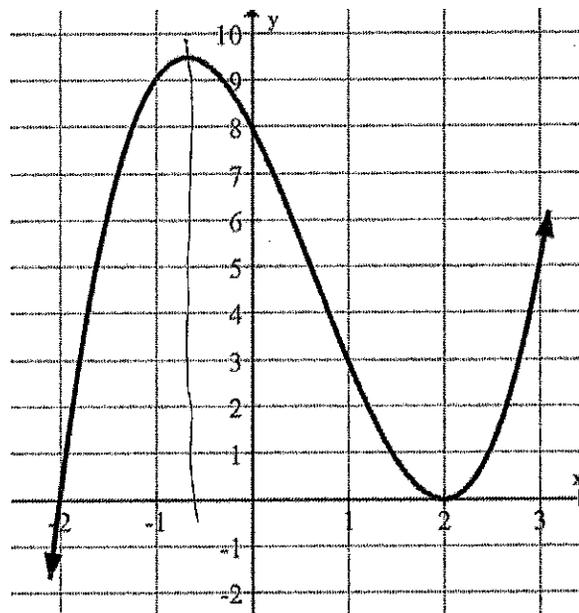
$$8 = 1(x+2)$$

$$-2 \quad -2$$

$$6 = x$$

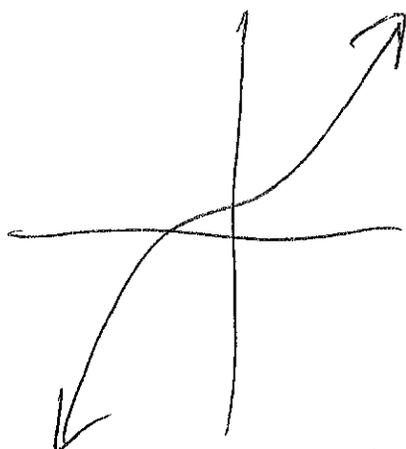
6. Use the graph of  $f(x)$  below to answer the following questions.

- a) Evaluate  $f(3) = 5$
- b) Evaluate  $f(-1) = 9$
- c) Solve  $f(x) = 0$   $x = -2, x = 2$
- d) Solve  $f(x) = -1$   $x \approx -2.1$
- e) Identify the domain of this function.
- f) On what interval is the function decreasing?  $(-\infty, \infty)$
- g) On what interval is the function increasing?  $(-2/3, 2)$
- h) Does the function have an absolute maximum?  $(-\infty, -2/3)$   $(2, \infty)$

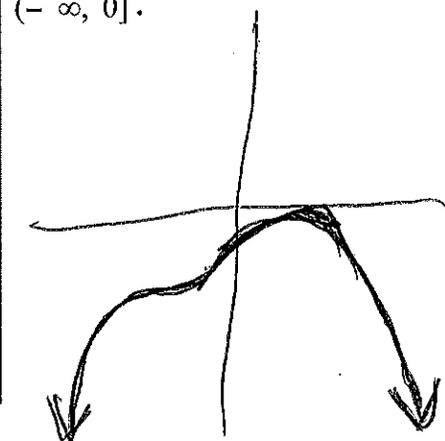


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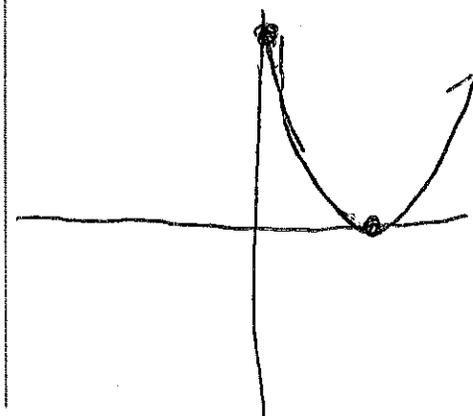
8. Sketch the graph of a function whose domain is  $(-\infty, \infty)$  and whose range is  $(-\infty, \infty)$ .



9. Sketch the graph of a function whose domain is  $(-\infty, \infty)$  and whose range is  $(-\infty, 0]$ .



10. Sketch the graph of a function whose domain and range are both  $[0, \infty)$ .



11. Use the table of values to answer the questions below.

$x$	-7	-2	0	1	3	4	6
$f(x)$	6	3	0	-2	1	0	0

a. Evaluate  $f(3) = 1$

c. Solve  $f(x) = 6$   $x = -7$

b. Evaluate  $f(6) = 0$

d. Solve  $f(x) = 0$   
 $x = 0, x = 4, x = 6$