Algebra 3-4
Function Notation

Name: _____ Per:____

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

Input → $f(2)$ → Plug in $x=2$

Output → $f(x)=2$ → Set EQ equal to 2

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 $f(x)=5$

$4-2x=5$
$-4 \quad -4$
$\frac{-2x}{-2}=\frac{1}{-2}$
$x=-\frac{1}{2}$

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

a) Evaluate $g(-3)$
b) Solve $g(x)=-6$

a) $g(-3)=(-3)^2-7$
$=9-7$
$=2$

b) $x^2-7=-6$
$+7 \quad +7$
$x^2=1$
$x=1$ or $x=-1$

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

a) Evaluate $h(2)$
b) Evaluate $h(a)$

a) $h(2)=(2-2)(2+7)$
$=(0)(9)=0$

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

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

a) Evaluate $f(14)$
b) Evaluate $f(t)$
c) Solve $f(x)=1$

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

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

c) $\frac{8}{x+2}=1$
$8=x+2$
$6=x$

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 $f(x) = 0$ $x = -2$ & $x = 2$

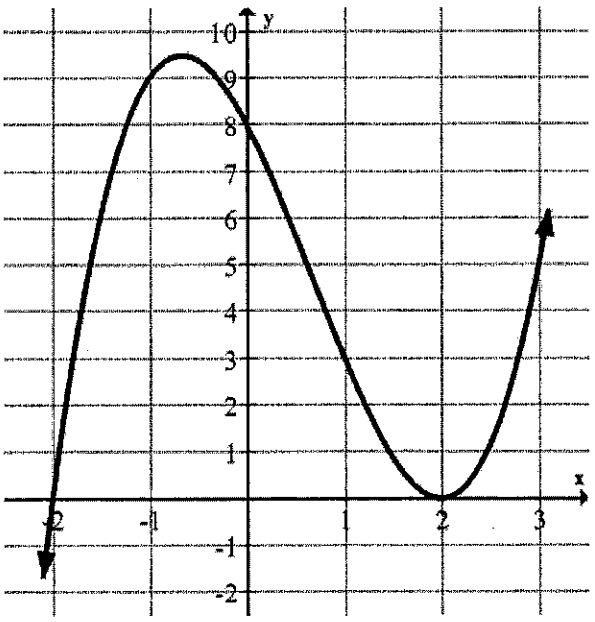
d) Solve $f(x) = -1$ $x \approx -2.1$

e) Identify the domain of this function. $(-\infty, \infty)$

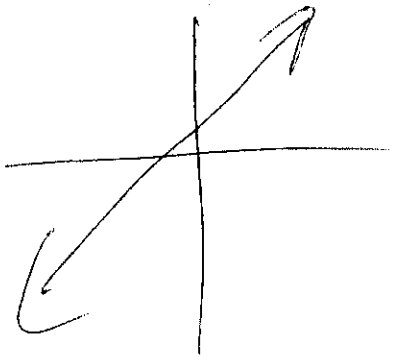
f) On what interval is the function decreasing? $(-2/3, 2)$

g) On what interval is the function increasing? $(-\infty, -2/3)$ & $(2, \infty)$

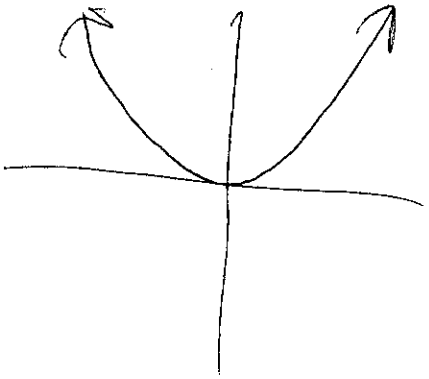
h) Does the function have an absolute maximum? No.



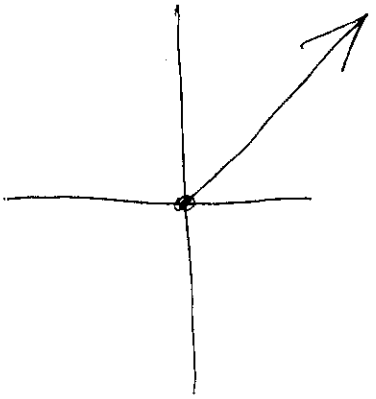
8. Sketch the graph of a function whose domain is $(-\infty, \infty)$ and whose range is $(-\infty, \infty)$.



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 $f(3)$ $= 1$

b. Evaluate $f(6)$ $= 0$

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

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