MAT 161 – CLASS NOTES – Sections 2.1a & 2.2a: Functions and Their Graphs

1) **Function**

2) **Domain**

3) **Range**

4) Functions may be expressed pictorially, in a table, as ordered pairs, or graphically.

5) Does the table describe a function? If so, give the domain and range.

a) $\{(5,7),(6,-3),(3,-1),(-3,5)\}$

b) $\{(-3,6),(1,2),(-3,4),(2,5),(-4,-2)\}$

c) $\{(1,1),(1,2),(2,1),(2,2),(3,1),(3,2)\}$

6) Determine whether the following equation represents y as a function of x.

a) $4x+3y=-4$

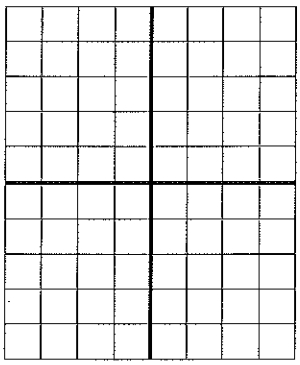
b) $y-x^2=4$

c) $y^2+4x=6$

d) $x=-2$

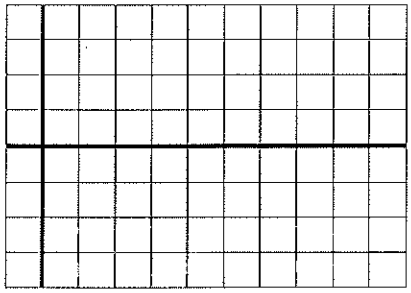
7) Make a table of values, then graph the following.

a) $y = 3x - 2$



x			
y			

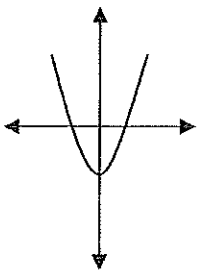
b) $y = \pm\sqrt{x}$

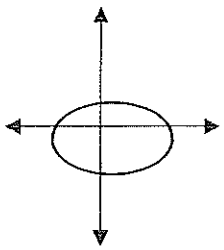


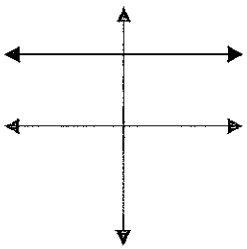
x				
y				

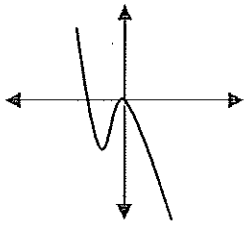
8) **vertical line test**

9) Indicate whether the following graphs represent functions.









10) **Function notation**

11) For $f(x)=2x+4$, find

a) $f(2)$

b) $f(-4)$

c) $f(x-3)$

12) For $g(x)=x^2-10x-3$, find

a) $g(3)$

$g(x) = x^2 - 10x - 3$

b) $g(-4)$

c) $g(-x)$

13) For $h(x) = \begin{cases} x^2 + 2 & x \le 1 \\ 2x^2 + 2 & x > 1 \end{cases}$, find

a) $h(-2)$

b) $h(1)$

c) $h(3)$