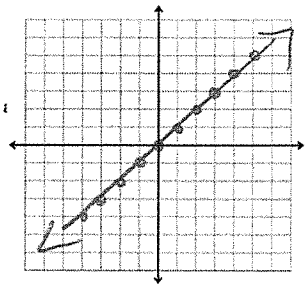
Name: _____
Hour: _____

Family of Functions: Linear

1) Function:
a. Write in function notation: $f(x) = x$



b. Plot the linear function, don't forget your a

c. Y intercept: $(0,0)$

d. X intercept: $(0,0)$

e. Domain: $(-\infty, \infty)$

f. Range: $(-\infty, \infty)$

g. Increasing Interval: $(-\infty, \infty)$

h. Decreasing Interval: N/A

X	f(X)
-2	-2
-1	-1
0	0
1	1
2	2

End behavior:

As x → +∞, f(x) → ∞

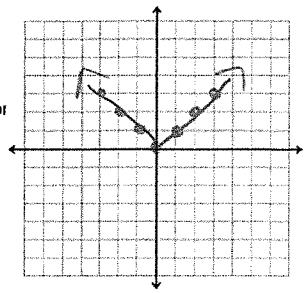
As x → -∞, f(x) → $-\infty$

Symmetry: ODD

Name: _____
Hour: _____

Family of Functions: Absolute Value

2) Function:
a. Write in function notation: $f(x) = |x|$



b. Plot the absolute value function, don't for your arrows!

c. Y intercept: $(0,0)$

d. X intercept: $(0,0)$

e. Domain: $(-\infty, \infty)$

f. Range: $[0, \infty)$

g. Increasing Interval: $[0, \infty)$

h. Decreasing Interval: $(-\infty, 0]$

X	f(X)
-2	2
-1	1
0	0
1	1
2	2

End behavior:

As x → +∞, f(x) → ∞

As x → -∞, f(x) → ∞

Symmetry: Even

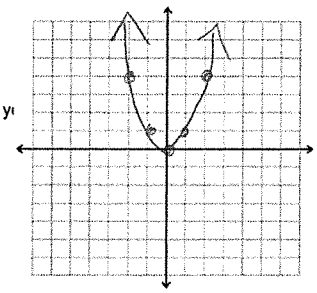
Name: _____
Hour: _____

Family of Functions: Quadratic

3) Function:
a. Write in function notation: $f(x) = x^2$
b. Determine the inverse and write in function notation:

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

$\sqrt{x} = y \quad f(x) = \sqrt{x}$



c. Plot the quadratic function, don't forget y arrows!

d. Y intercept: $(0,0)$

e. X intercept: $(0,0)$

f. Domain: $(-\infty, \infty)$

g. Range: $[0, \infty)$

h. Increasing Interval: $[0, \infty)$

i. Decreasing Interval: $(-\infty, 0]$

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

End behavior:

As x → +∞, f(x) → ∞

As x → -∞, f(x) → ∞

Symmetry: Even

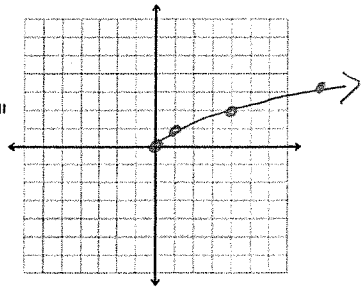
Name: _____
Hour: _____

Family of Functions: Radical

4) Function:
a. Write in function notation: $f(x) = \sqrt{x}$
b. Determine the inverse and write in function notation:

$(x)^2 = (\sqrt{y})^2$

$x^2 = y \quad f(x) = x^2$



c. Plot the radical function, don't forget your arrows!

d. Y intercept: $(0,0)$

e. X intercept: $(0,0)$

f. Domain: $[0, \infty)$

g. Range: $[0, \infty)$

h. Increasing Interval: $[0, \infty)$

i. Decreasing Interval: ____

X	f(X)
-1	____
0	0
1	1
4	2
9	3
16	4

End behavior:

As x → +∞, f(x) → ∞

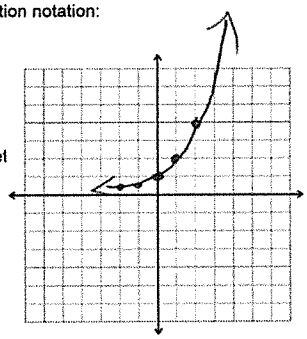
As x → -∞, f(x) → 0

Symmetry: N/A

Name: _____
Hour: _____

Family of Functions: Exponential

5) Function:
a. Write in function notation: $f(x) = 2^x$
b. Determine the inverse and write in function notation:



c. Plot the exponential function, don't forget arrows!
d. Y intercept: $(0,1)$
e. X intercept: ——
f. Domain: $(-\infty, \infty)$
g. Range: $(0, \infty)$
h. Increasing Interval: $(-\infty, \infty)$
i. Decreasing Interval: ——

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

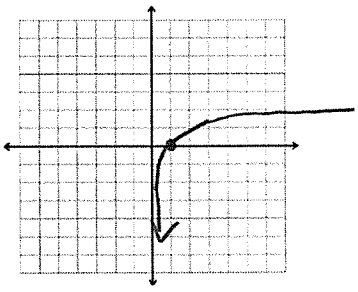
End behavior:
As $x \to +\infty$, $f(x) \to \infty$
As $x \to -\infty$, $f(x) \to -\infty$

Symmetry: N/A

Name: _____
Hour: _____

Family of Functions: Logarithmic

6) Function:
a. Write in function notation: $f(x) = \log x$
b. Determine the inverse and write in function notation:



c. Plot the logarithmic function, don't forget arrows!
d. Y intercept: N/A
e. X intercept: $(1,0)$
f. Domain: $(0, \infty)$
g. Range: $(-\infty, \infty)$
h. Increasing Interval: $(-\infty, \infty)$
i. Decreasing Interval: ——

x	f(x)
0	Undef
1	0

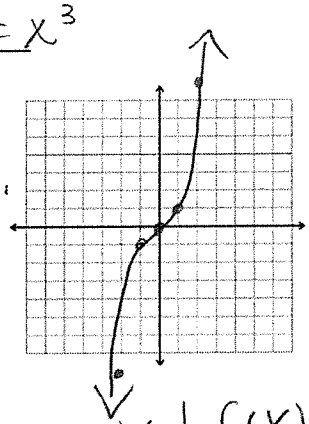
End behavior:
As $x \to +\infty$, $f(x) \to \infty$
As $x \to 0$, $f(x) \to -\infty$

Symmetry: N/A

Name: _____
Hour: _____

Family of Functions: Cubic

7) Function:
a. Write in function notation: $f(x) = x^3$



b. Plot the cubic function, don't forget your
c. Y intercept: $(0,0)$
d. X intercept: $(0,0)$
e. Domain: $(-\infty, \infty)$
f. Range: $(-\infty, \infty)$
g. Increasing Interval: $(-\infty, \infty)$
h. Decreasing Interval: ——

x	f(x)
-2	-8
-1	-1
0	0
1	1
2	8

End behavior:
As $x \to +\infty$, $f(x) \to \infty$
As $x \to -\infty$, $f(x) \to -\infty$

Symmetry: ODD