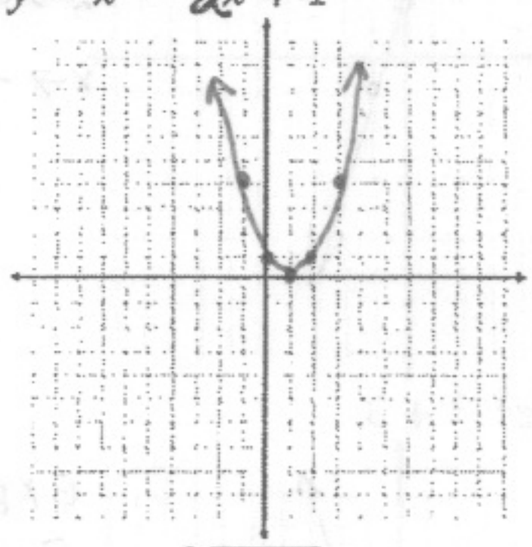
Use your graphing calculator, phone or Computer **to graph** the following functions. **Copy** graph on to the graph below .Then **identify** each function and their **Key Features**(x-int & y-int, end-behavior, max/min).

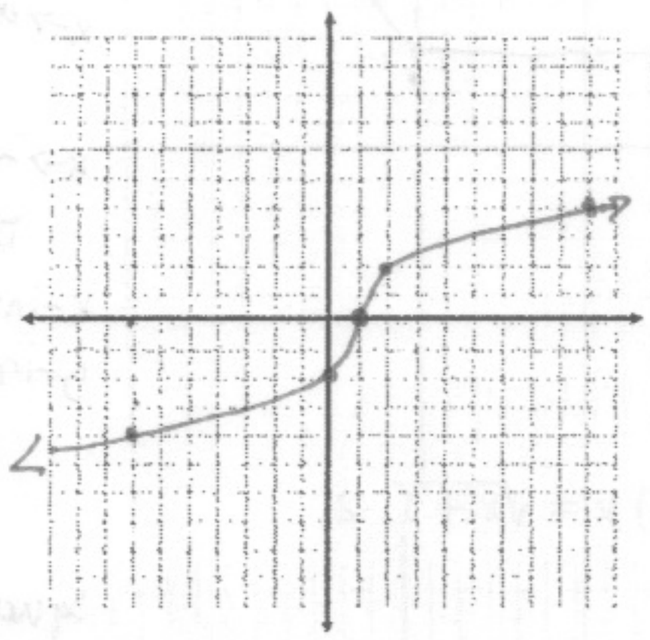
Calculator Help check out:
Computer program:
https://www.desmos.com/calculator

1.) $y = x^2 - 2x + 1$



Quadratic Function
x-int = 1
y-int = 1
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to \infty$

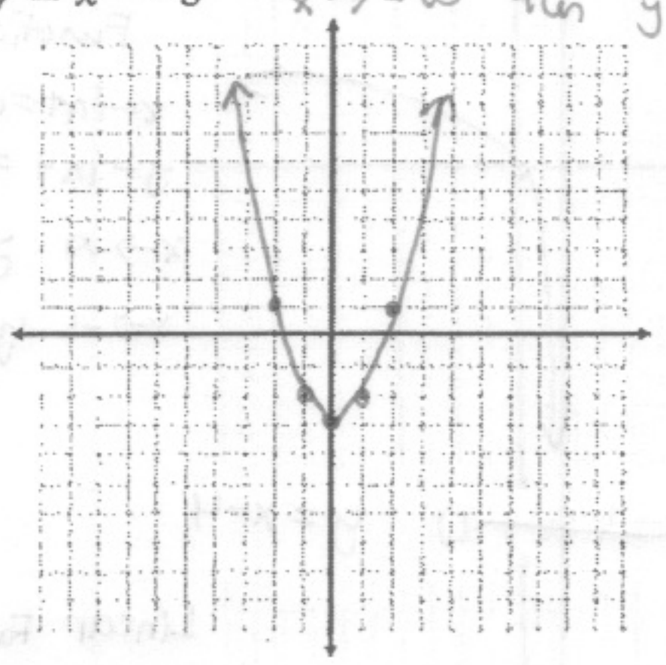
2.) $y = 2\sqrt[3]{x-1}$



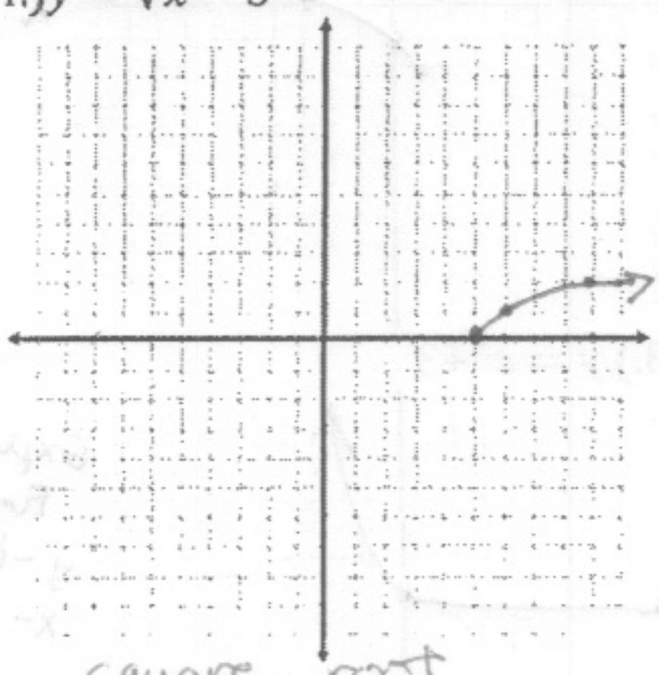
Cube root Function
x-int = 1
y-int = -2
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to -\infty$

3.) $y = x^2 - 3$

Quadratic Function
x-int ≈ 2, -2
y-int = -3
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to \infty$

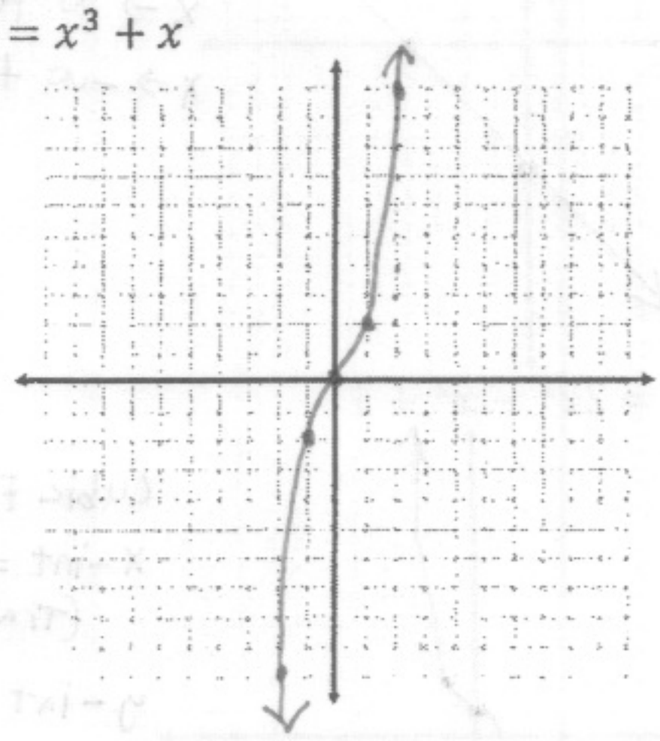


4.) $y = \sqrt{x-5}$



square root
radical function
x-int = 5
y-int = Does not exist (D.N.E.)

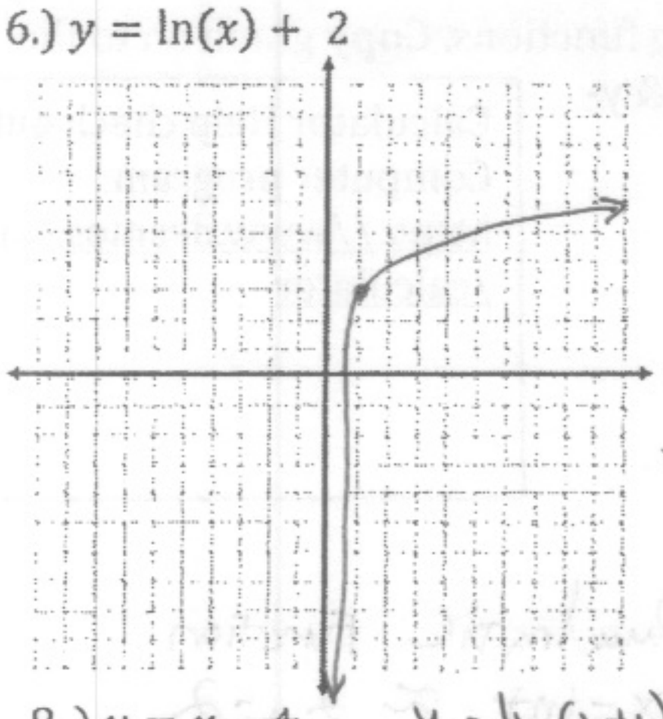
5.) $y = x^3 + x$



Cubic Function
x-int = 0
y-int = 0
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to -\infty$

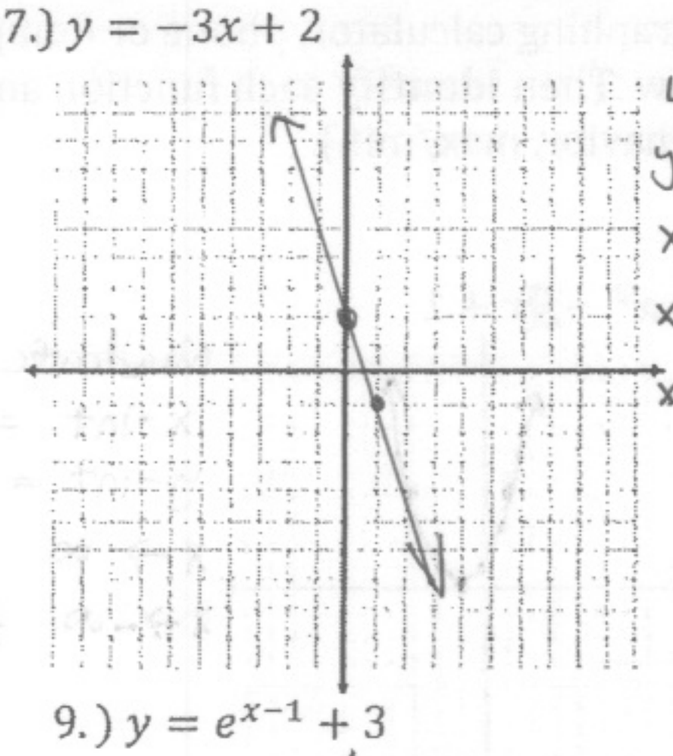
~~4~~ 4 4

6.) $y = \ln(x) + 2$



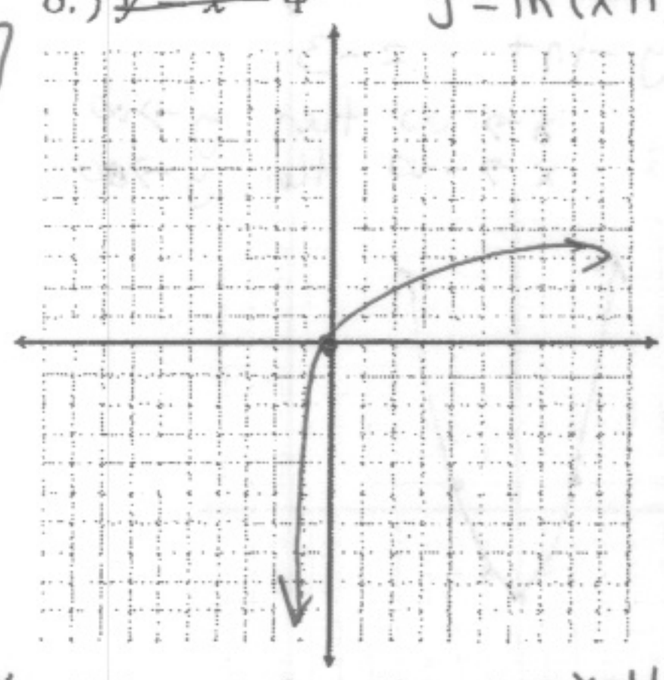
logarithmic Function
x-int ≈ 1
$x \to \infty$ then $y \to \infty$
$x \to 0$ then $y \to -\infty$

7.) $y = -3x + 2$



Linear Funct
y-int = 2
x-int = 2/3
$x \to \infty$ then $y \to -\infty$
$x \to -\infty$ then $y \to \infty$

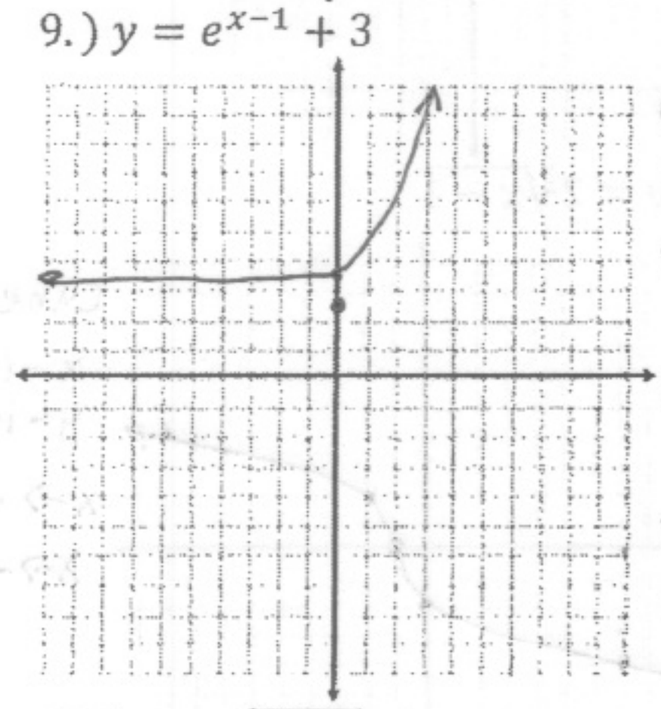
8.) ~~$y = x - 4$~~ $y = \ln(x+1)$



logarithmic Function
x-int = 0
y-int = 0
$x \to \infty$ $y \to \infty$
$x \to -1$ $y \to -\infty$

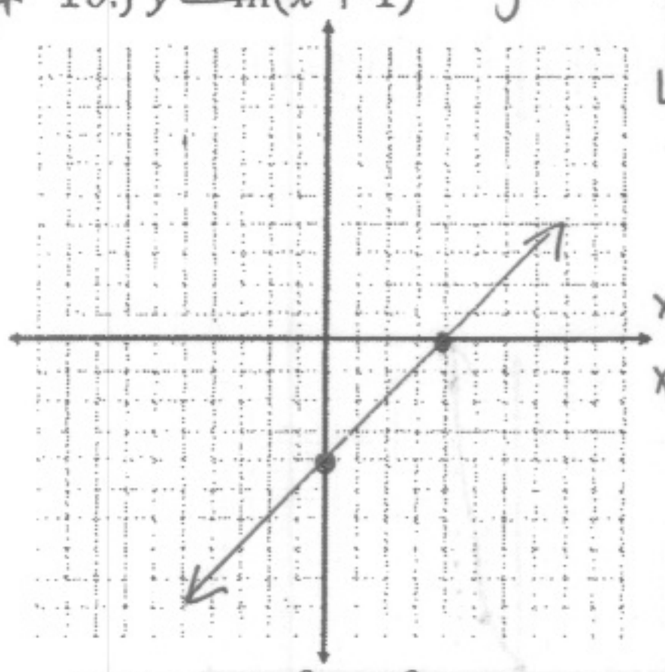
switch!

9.) $y = e^{x-1} + 3$



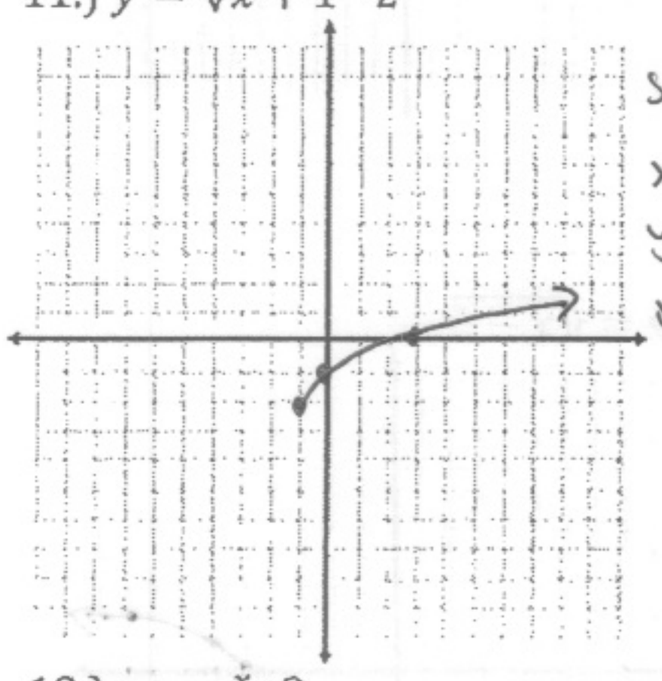
Exponential Function.
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to 3$
x-int = ONE
y-int = 3.36

10.) $y = \ln(x+1)$ $y = x - 4$



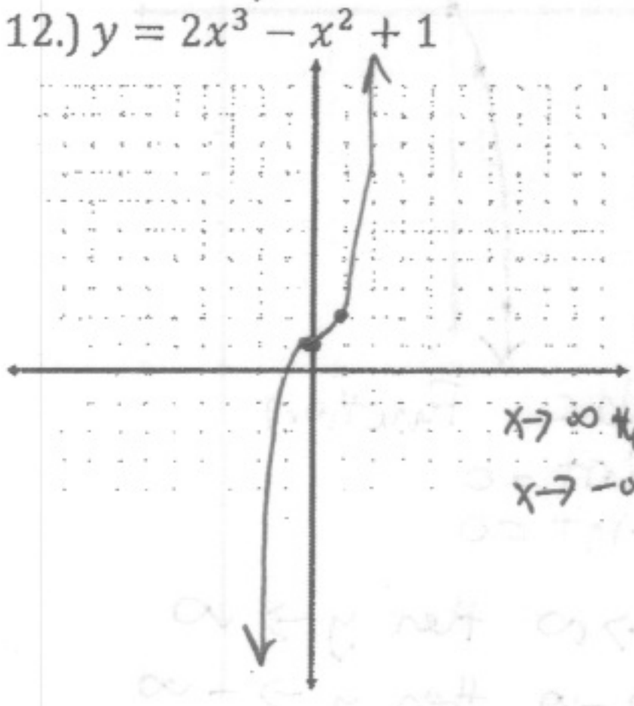
Linear Function
x-int = 4
y-int = -4
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to -\infty$

11.) $y = \sqrt{x+1} - 2$



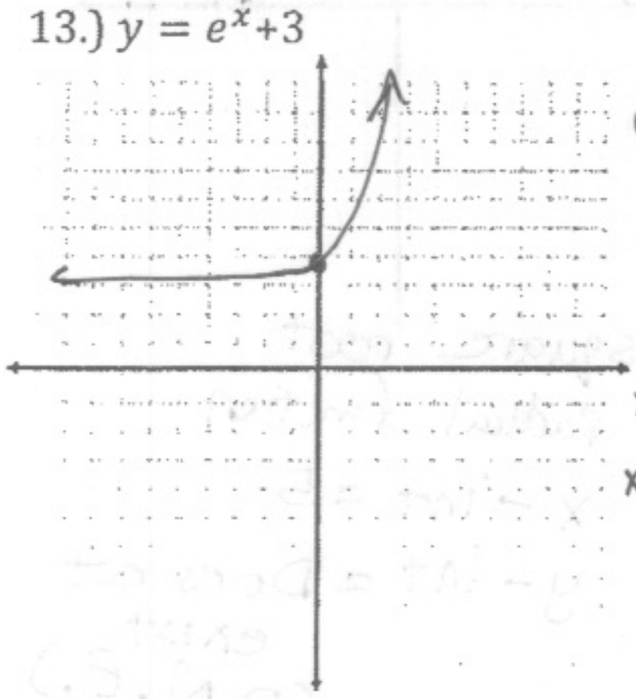
Square root
x-int = 3
y-int = -1
$x \to \infty$ then $y \to \infty$

12.) $y = 2x^3 - x^2 + 1$



Cubic Funct.
x-int = -0.657 (Trace)
y-int = 1
$x \to \infty$ then $y \to \infty$
$x \to -\infty$ then $y \to -\infty$

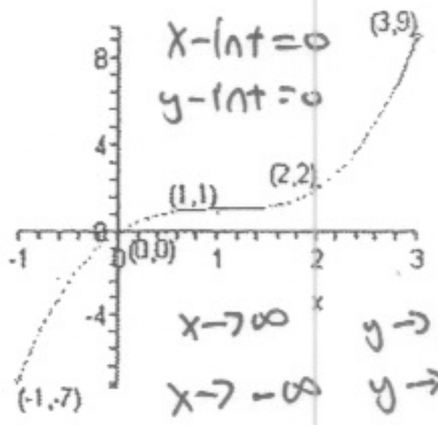
13.) $y = e^x + 3$



Exponential Function
y-int = 4
x-int = DNE
$x \to \infty$ $y \to \infty$
$x \to -\infty$ $y \to 3$

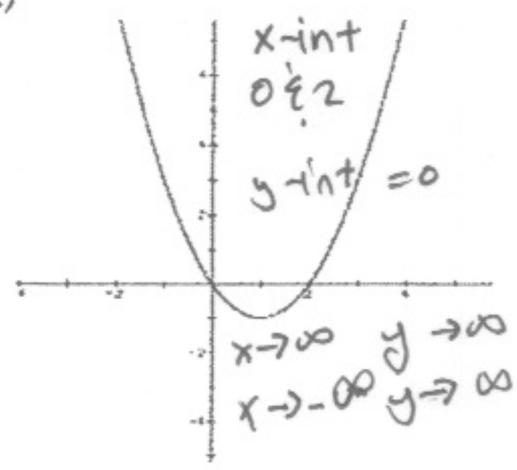
★ (LT: 2A) Analyze each of the following graphs. Identify their name and key features.
(For example, x-intercept, y-intercept, max/min, end behavior.)

1.) Cubic Function



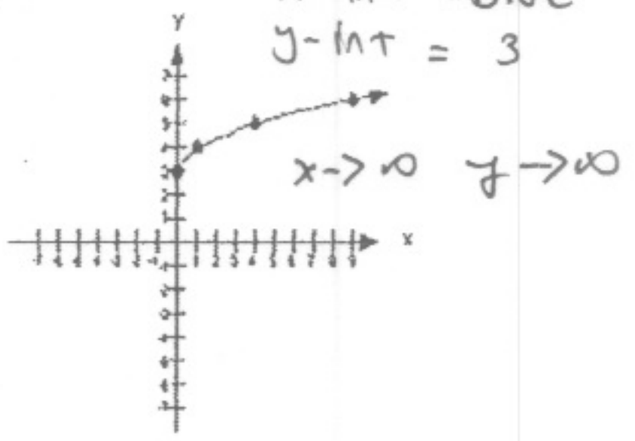
x-int = 0
y-int = 0
$x \to \infty$ $y \to \infty$
$x \to -\infty$ $y \to -\infty$

2.) Quadratic



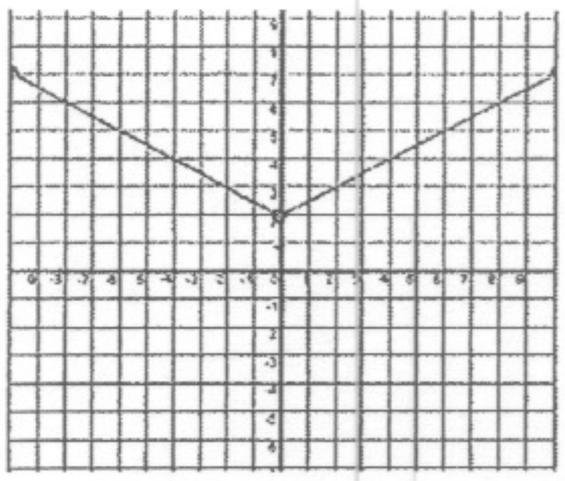
x-int 0 & 2
y-int = 0
$x \to \infty$ $y \to \infty$
$x \to -\infty$ $y \to \infty$

3.)



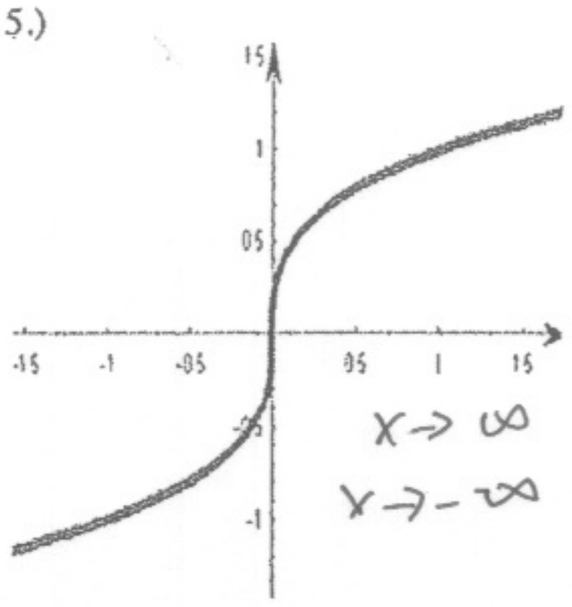
x-int = DNE
y-int = 3
$x \to \infty$ $y \to \infty$

4.)



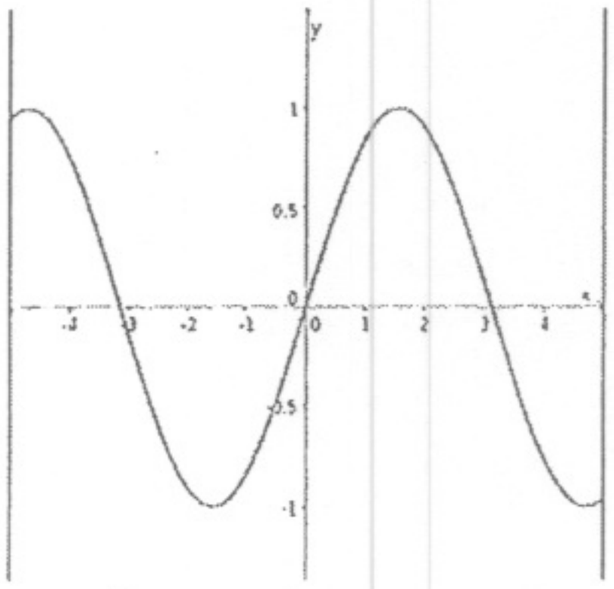
absolute value function
min (0,2)
x-int DNE
y-int 2
$x \to \infty$ $y \to \infty$
$x \to -\infty$ $y \to \infty$

5.)



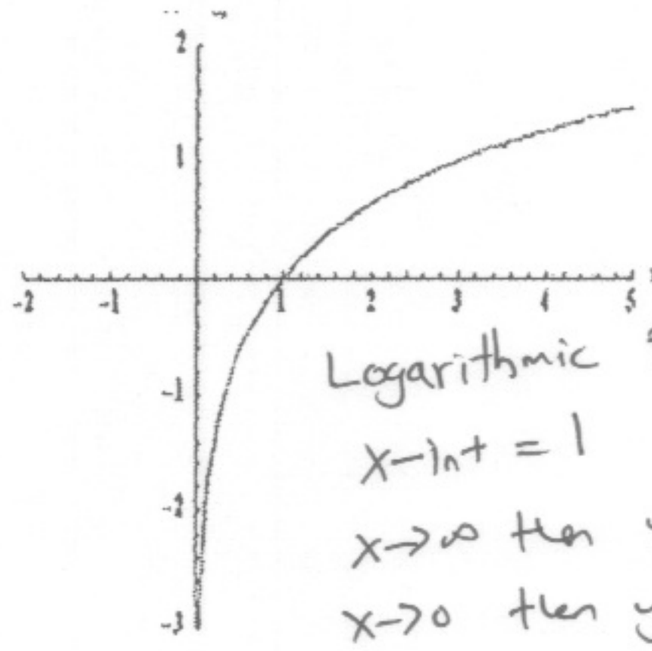
Cube root
x-int = 0
y-int = 0
$x \to \infty$ $y \to \infty$
$x \to -\infty$ $y \to -\infty$

6.)



Sine Function
Periodic
x-int = $0, \pi, -\pi, 2\pi, -2\pi, \ldots$
y-int = 0
$x \to \pm\infty$ $y \to$ going between and including 1 and -1

7.)



Logarithmic function.
x-int = 1
$x \to \infty$ then $y \to \infty$
$x \to 0$ then $y \to -\infty$

x^2 [illegible] -7