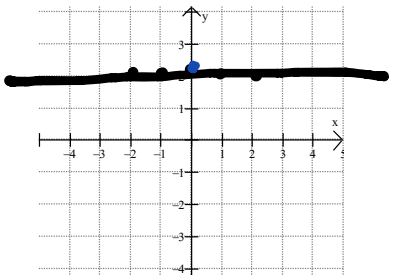
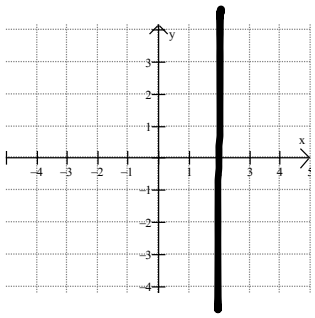
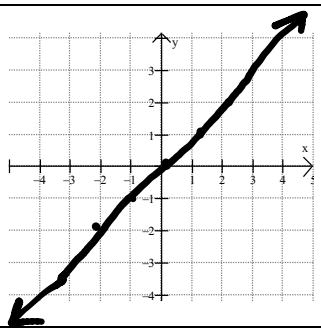
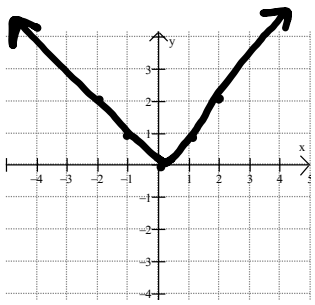
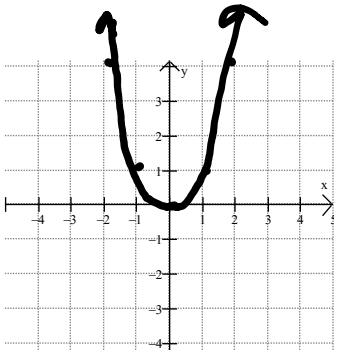
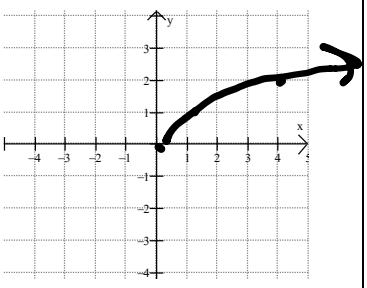
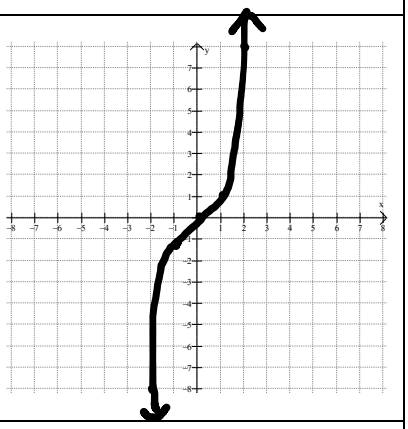
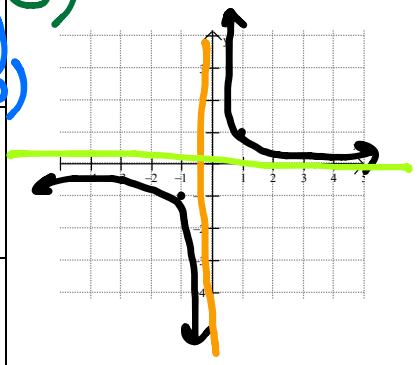
PARENT GRAPHS

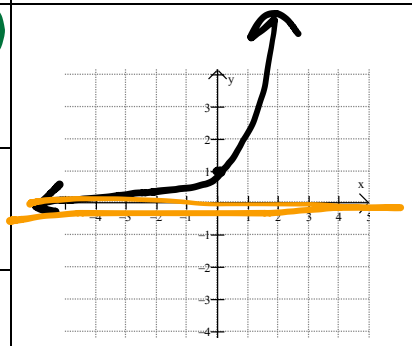
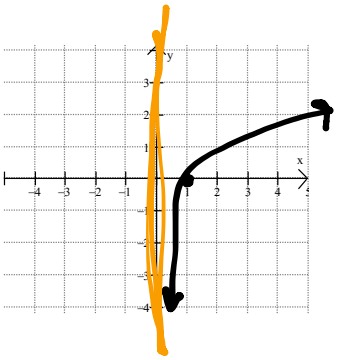
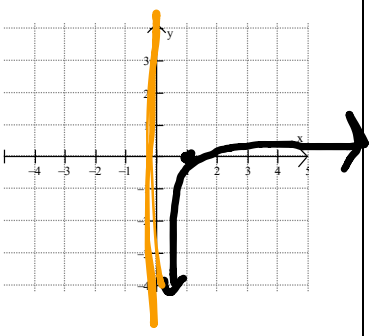
FUNCTION	TABLE OF VALUES	D/R/INT	GRAPH
Constant – Zero Slope $f(x)=2$ Standard form: $f(x)=a$	x | y -2 | 2 -1 | 2 0 | 2 1 | 2 2 | 2	Domain: $(-\infty,\infty)$ Range: $[2]$ y-intercept: $(0,2)$ x-intercept: NA	
Constant – Undefined Slope $x=2$ Standard form: $x=a$	x | y 2 | 2 | 2 | 2 | 2 |	Domain: $[2]$ Range: $(-\infty,\infty)$ y-intercept: NA x-intercept: $(2,0)$	
Linear $f(x)=x$ Standard form: $f(x)=mx+b$	x | y -2 | -2 -1 | -1 0 | 0 1 | 1 2 | 2	Domain: $(-\infty,\infty)$ Range: $(-\infty,\infty)$ y-intercept: $(0,0)$ x-intercept: $(0,0)$	
Absolute Value $f(x)=\|x\|$ Standard form: $f(x)=a\|x-h\|+k$	x | y -2 | 2 -1 | 1 0 | 0 1 | 1 2 | 2	Domain: $(-\infty,\infty)$ Range: $[0,\infty)$ y-intercept: $(0,0)$ x-intercept: $(0,0)$	
Quadratic $f(x)=x^2$ Standard form: $f(x)=ax^2+bx+c$ Vertex form: $f(x)=a(x-h)^2+k$ Intercept form: $f(x)=a(x-p)(x-q)$	x | y -2 | 4 -1 | 1 0 | 0 1 | 1 2 | 4 -3 | 9 3 | 9	Domain: $(-\infty,\infty)$ Range: $[0,\infty)$ y-intercept: $(0,0)$ x-intercept: $(0,0)$	

FUNCTION	TABLE OF VALUES	D/R/INT	GRAPH
Radical – Square Root $f(x)=\sqrt{x}$ Standard form: $f(x)=a\sqrt{x-h}+k$	x | y -3 | — -1 | — 0 | 0 1 | 1 4 | 2 9 | 3	Domain: [0,∞) Range: [0,∞) y-intercept: (0,0) x-intercept: (0,0)	
Cubic $f(x)=x^3$ Standard form: $f(x)=ax^3+bx^2+cx+d$	x | y -2 | -8 -1 | -1 0 | 0 1 | 1 2 | 8	Domain: (-∞,∞) Range: (-∞,∞) y-intercept: (0,0) x-intercept: (0,0)	
Rational $f(x)=\frac{1}{x}$	x | y -2 | -½ -1 | -1 0 | — 1 | 1 2 | ½	Domain: (-∞,0) or (0,∞) Range: (-∞,0) or (0,∞) y-intercept: NA x-intercept: NA Asymptotes: x = 0 y = 0	

VOCABULARY

ASYMPTOTE:

- A line that a curve *approaches* but never reaches.
- Caused by an undefined solution
- Creates a barrier where the graph cannot cross
- Affects the domain and/or range of a function

FUNCTION	TABLE OF VALUES	D/R/INT	GRAPH
Exponential $f(x)=e^x$ Standard form: $f(x)=a(1\pm r)^t$	x: 0 | y: 1	Domain: $(-\infty,\infty)$ Range: $(0,\infty)$ y-intercept: $(0,1)$ x-intercept: NA Asymptotes: $y=0$	
Natural Logarithmic $f(x)=\ln x$ Standard form: $f(x)=\ln x$	x: 1 | y: 0	Domain: $(0,\infty)$ Range: $(-\infty,\infty)$ y-intercept: NA x-intercept: $(1,0)$ Asymptotes: $x=0$	
Logarithmic $f(x)=\log x$ Standard form: $f(x)=\log_b x$ Special Properties: $0=\log_b 1$ $1=\log_b b$	x: 1, 10 | y: 0, 1	Domain: $(0,\infty)$ Range: $(-\infty,\infty)$ y-intercept: NA x-intercept: $(1,0)$ Asymptotes: $x=0$	
Logarithmic $f(x)=\log_4 x$ Standard form: $f(x)=\log_b x$ Special Properties: $0=\log_b 1$ $1=\log_b b$	x: 1, 4, 16, 64 | y: 0, 1, 2, 3	Domain: $(0,\infty)$ Range: $(-\infty,\infty)$ y-intercept: NA x-intercept: $(1,0)$ Asymptotes: $x=0$