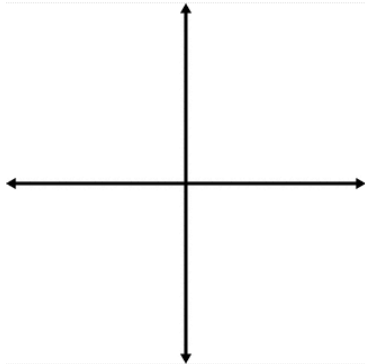
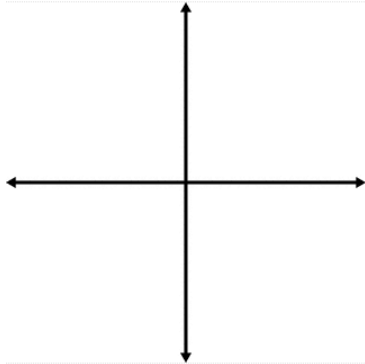
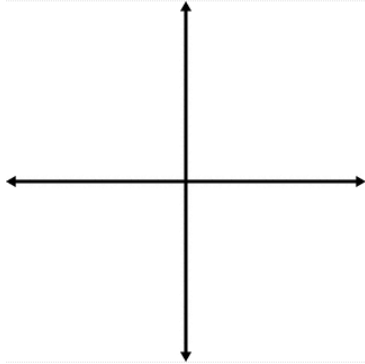
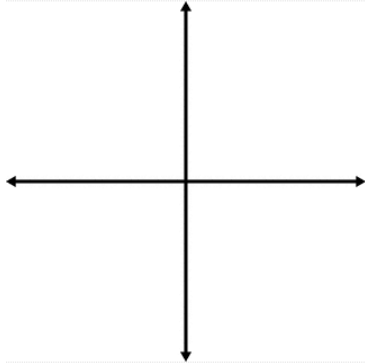
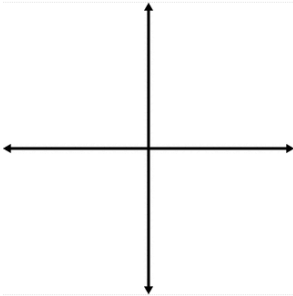
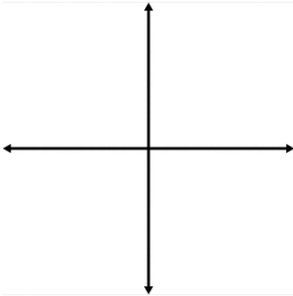
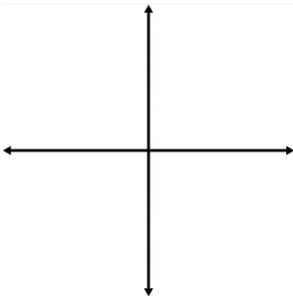
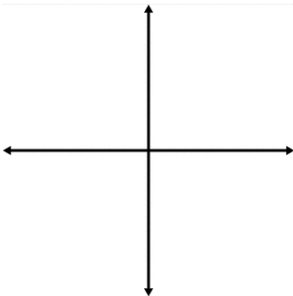
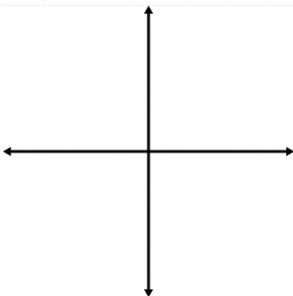


# AB Calculus – Chapter P (Day 2) – Parent Graphs of Families of Functions and Transformations

## Review of Parent Functions and Graphs

Parent Function	Graph	Characteristics
<b>Linear Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$ As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$
<b>Quadratic Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$ As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$
<b>Cubic Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$ As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$
<b>Reciprocal (Rational Function)</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$ As $x \rightarrow \underline{\hspace{1cm}}$ , $f(x) \rightarrow \underline{\hspace{1cm}}$

Parent Function	Graph	Characteristics
<b>Square Root Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow$ _____, $f(x) \rightarrow$ _____ As $x \rightarrow$ _____, $f(x) \rightarrow$ _____
<b>Cube Root Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow$ _____, $f(x) \rightarrow$ _____ As $x \rightarrow$ _____, $f(x) \rightarrow$ _____
<b>Exponential Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow$ _____, $f(x) \rightarrow$ _____ As $x \rightarrow$ _____, $f(x) \rightarrow$ _____
<b>Logarithmic Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow$ _____, $f(x) \rightarrow$ _____ As $x \rightarrow$ _____, $f(x) \rightarrow$ _____
<b>Absolute Value Function</b>		Domain: _____ Range: _____ End Behavior: As $x \rightarrow$ _____, $f(x) \rightarrow$ _____ As $x \rightarrow$ _____, $f(x) \rightarrow$ _____

**Transformations of Parent Functions** \*Given parent function  $f(x)$ , the family of functions can be represented by the transformed function  $f(x) = -Af(x - h) + k$

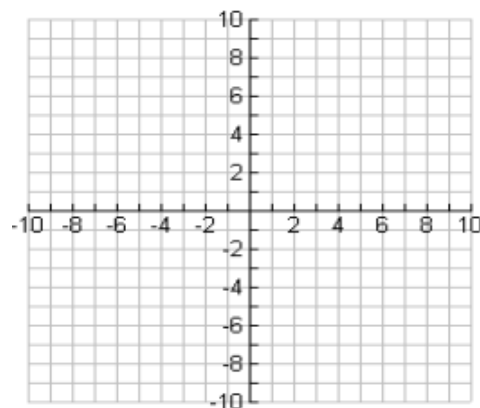
**Transformations Review**

$f(x + h)$ or $f(x - h)$	
$f(x) + k$ or $f(x) - k$	
$A * f(x)$	
$-f(x)$	

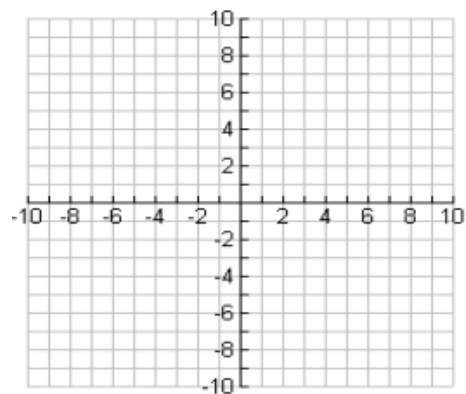
For the following functions, **i)** identify parent function, **ii)** list the transformations

**iii)** find domain and range **iv)** sketch the graph

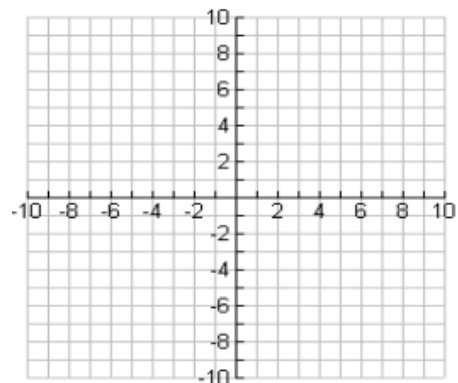
1)  $f(x) = 2(x - 3)^2 + 1$



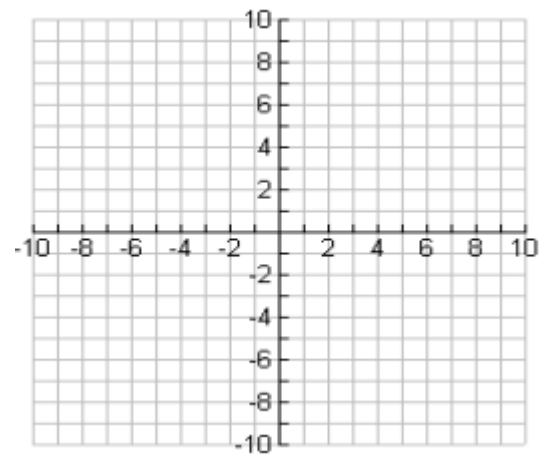
2)  $f(x) = -\sqrt{x + 3} + 1$



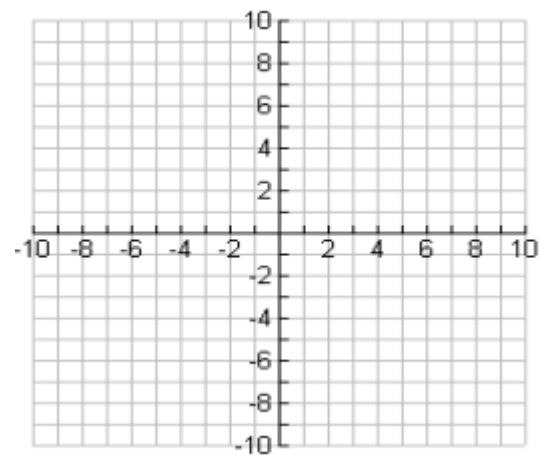
3)  $f(x) = |x + 4| - 1$



$$4) f(x) = \frac{2}{x+1} - 3$$



$$5) f(x) = e^{x+2} - 3$$



$$6) f(x) = \ln(x-3) + 2$$

