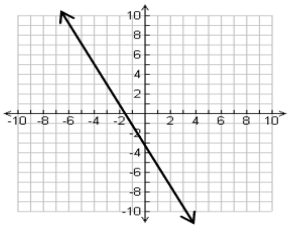
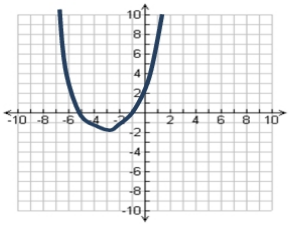
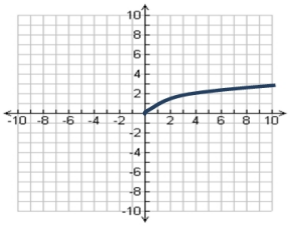
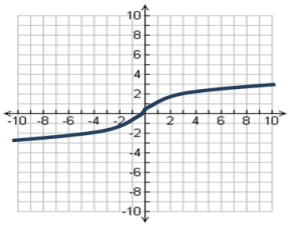
Domain and Range

Function Type	Graph	Domain	Range	Notes
Linear f(x)=mx+b		$(-\infty, \infty)$	$(-\infty, \infty)$	No restrictions Not ever!

Quadratic
 	
$f(x)=ax^2+bx+c$
		$(-\infty, \infty)$	If a < 0 then
			$(-\infty, f\left(\frac{-b}{2a}\right))$
			
			If a > 0 then
			$(f\left(\frac{-b}{2a}\right), \infty)$
				Quadratic functions have a max if a < 0.
				
				Quadratic functions have a min if a > 0.
				
				This restricts the range.

Radical (even indices) $f(x) = \sqrt{x}$		$[0, \infty)$ For even indices	$[0, \infty)$ for even indices	The expression under the radical must always be positive or zero for even indices.
Radical (odd indices) $f(x) = \sqrt[3]{x}$		$(-\infty, \infty)$	$(-\infty, \infty)$	The expression under the radical does not need to be positive. An odd number of negative values multiplied together is negative.