

Transformations of Base (Parent) Functions Review
Fill in the table and make sketches of each base function with its transformed function

Parent Function	$f(x) = x^2$	$g(x) = x^3$	$h(t) = \sqrt{t}$	$p(t) = \frac{1}{t}$	$f(x) = x $	$g(x) = 2^x$	$h(x) = \cos(x)$
Domain	$x \in \mathbb{R}$	$x \in \mathbb{R}$	$t \geq 0$	$t \in \mathbb{R}, t \neq 0$	$x \in \mathbb{R}$	$x \in \mathbb{R}$	$x \in \mathbb{R}$
Range	$f(x) \geq 0$	$g(x) \in \mathbb{R}$	$h(t) \geq 0$	$(-\infty, 0) \cup (0, \infty)$	$f(x) \geq 0$	$g(x) > 0$	$-1 \leq h(x) \leq 1$
Transformed Function	$f(x) = 2(x-1)^2 + 1$	$g(x) = -(2(x+4))^3 - 1$	$h(t) = -\sqrt{2x-6} + 2$ $2(x-3)$	$p(t) = \frac{2}{x+1} - 2$	$f(x) = \frac{1}{2} x-3 + 3$	$g(x) = 3 \cdot 2^{3(x-1)}$	$h(x) = 3\cos(x-3) + 2$
Horizontal Dilation	NONE	$\frac{1}{2}$ (or is it?)	$\frac{1}{2}$	NONE	1	$\frac{1}{3}$	1
Horizontal Flip	NONE	None	NONE	NONE	Yes (?)	NONE	None
Horizontal Translation	1 right	4 left	$\frac{3}{2}$ right	1 LEFT	3 right	1 right	$\frac{\pi}{6}$ 30° right
Vertical Dilation	x2	1 (or is it?)	1	YES x2	$\frac{1}{2}$	3	3
Vertical Flip	NONE	Yes	YES	NONE	Yes	NONE	None
Vertical Translation	up 1	1 down	up 2	2 down	3 up	NONE	2 up
Transformed Domain	$x \in \mathbb{R}$	$x \in \mathbb{R}$	$[3, \infty)$	$(-\infty, -1) \cup (-1, \infty)$	$x \in \mathbb{R}$	$x \in \mathbb{R}$	$x \in \mathbb{R}$
Transformed Range	$f(x) \geq 1$	$f(x) \in \mathbb{R}$	$(-\infty, 2]$	$(-\infty, 2) \cup (2, \infty)$	$f(x) \leq 3$	$g(x) > 0$	$-1 \leq h(x) \leq 5$