Think about these insights!

horizontal shift!!

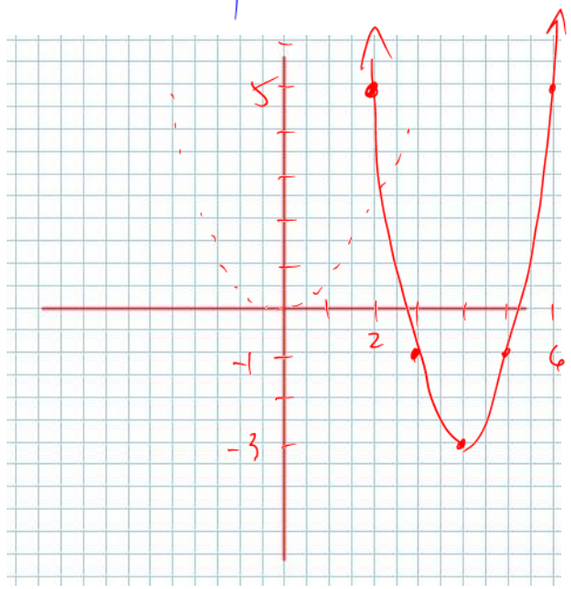
vertical shift!!

Fill in the chart. Graph one of each type of function on the back side by first stating the base function's table of values, then create the transformed table of values.

Function	Standard Form $f(x)=a\,f\left(k(x-d)\right)+c$	Vertical Stretch **a**	Vertical Shift **c**	Horizontal Stretch **1/k**	Horizontal Shift **d**	Transformed *x*'s $\frac{1}{k}x+d$	Transformed *y*'s $ay+c$	Domain	Range	y-int $(x=0)$
$f(x)=2(x-4)^2-3$	$f(x)=2(x-4)^2-3$	2	3 ↓	1	4 →	$x+4$	$2f(x)-3$	$\{x\in\mathbb{R}\}$	$\{f(x)\in\mathbb{R}\mid f(x)\geq -3\}$	29
$g(x)=-3\sqrt{2x+8}+7$	$g(x)=-3\sqrt{2(x+4)}+7$	−3	7 ↑	$\frac{1}{2}$	4 ←	$x-4$	$-3g(x)+7$	$\{x\in\mathbb{R}\mid x\geq -4\}$	$\{g(x)\in\mathbb{R}\mid g(x)\leq 7\}$	−1.5
$h(x)=5\lvert x+2\rvert-8$	$h(x)=5\lvert x+2\rvert-8$	5	8 ↓	1	2 ←	$x-2$	$5h(x)-8$	$\{x\in\mathbb{R}\}$	$\{h(x)\in\mathbb{R}\mid h(x)\geq -8\}$	2
$k(x)=\frac{3}{\frac{1}{2}x-4}+5$	$k(x)=3\left(\frac{1}{\frac{1}{2}(x-8)}\right)+5$	3	5 ↑	2	8 →	$2x+8$	$3k(x)+5$	$\{x\in\mathbb{R}\mid x\neq 8\}$	$\{k(x)\in\mathbb{R}\mid k(x)\neq 5\}$	3.5
$m(x)=-4(2x+6)^2+7$	$m(x)=-4(2(x+3))^2+7$	−4	7 ↑	$\frac{1}{2}$	3 ←	$\frac{1}{2}x-3$	$-4m(x)+7$	$\{x\in\mathbb{R}\}$	$\{m(x)\in\mathbb{R}\mid m(x)\leq 7\}$	−137
$n(x)=5\sqrt{0.4x-1}-3$	$n(x)=5\sqrt{0.4(x-2.5)}-3$	5	3 ↓	$\frac{1}{0.4}=2.5$	2.5 →	$2.5x+2.5$	$5n(x)-3$	$\{x\in\mathbb{R}\mid x\geq 2.5\}$	$\{n(x)\in\mathbb{R}\mid n(x)\geq -3\}$	does not exist
$p(x)=-3\lvert\frac{2}{3}x+6\rvert-2$	$p(x)=-3\lvert\frac{2}{3}(x+9)\rvert-2$	−3	2 ↓	$\frac{3}{2}=1.5$	9 ←	$1.5x-9$	$-3p(x)-2$	$\{x\in\mathbb{R}\}$	$\{p(x)\in\mathbb{R}\mid p(x)\leq -2\}$	−20
$r(x)=\frac{-2}{-x+4}-6$	$r(x)=-2\left(\frac{1}{-(x-4)}\right)-6$	−2	6 ↓	−1	4 →	$-x+4$	$-2r(x)-6$	$\{x\in\mathbb{R}\mid x\neq 4\}$	$\{r(x)\in\mathbb{R}\mid r(x)\neq -6\}$	−6.5
$u(x)=\frac{3}{2}(x+7)^2-10$	$u(x)=\frac{3}{2}(x+7)^2-10$	$\frac{3}{2}$	10 ↓	1	7 ←	$x-7$	$\frac{3}{2}u(x)-10$	$\{x\in\mathbb{R}\}$	$\{u(x)\in\mathbb{R}\mid u(x)\geq 10\}$	63.5
$w(x)=\frac{-3}{4}\sqrt{\frac{5}{2}x+10}+12$	$w(x)=\frac{-3}{4}\sqrt{\frac{5}{2}(x+4)}+12$	$-\frac{3}{4}$	12 ↑	$\frac{2}{5}$	4 ←	$\frac{2}{5}x-4$	$-\frac{3}{4}w(x)+12$	$\{x\in\mathbb{R}\mid x\geq -4\}$	$\{w(x)\in\mathbb{R}\mid w(x)\leq 12\}$	9.6

Sketches of your Graphs

$f(x) = 2(x-4)^2 - 3$



parent (basic)

$g(x) = x^2$

x	$g(x)$
-2	4
-1	1
0	0
1	1
2	4

transformed

$x_t = x+4$	$f(x) = 2g(x) - 3$
2	5
3	-1
4	-3
5	-1
6	5