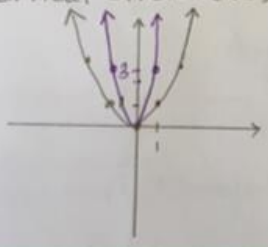
1. $f(x) = 3x^2$ $y = \frac{2}{x}$ $g(x) = -2\sqrt{x}$ $r(x) = 0.5 \sin x$

$f(x) = 3x^2$

Quadratic

Vertical stretch (x3)



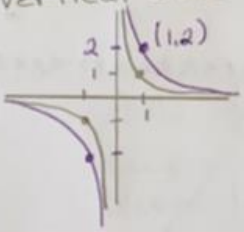
$y = x^2$

$y = 3x^2$

$y = \frac{2}{x}$

Reciprocal

Vertical stretch (x2)



$y = \frac{1}{x}$

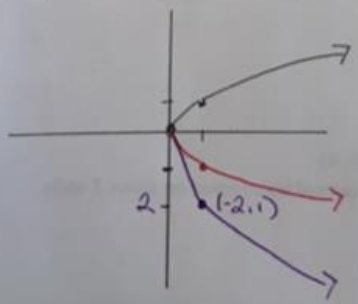
$y = \frac{2}{x}$

$g(x) = -2\sqrt{x}$

Square Root

Reflection on x axis

Vertical stretch (x2)



$y = \sqrt{x}$

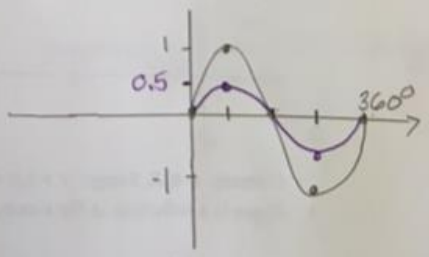
$y = -\sqrt{x}$

$y = -2\sqrt{x}$

$r(x) = 0.5 \sin x$

Sinusoidal

Vertical Compression ($x \frac{1}{2}$)



$y = \sin x$

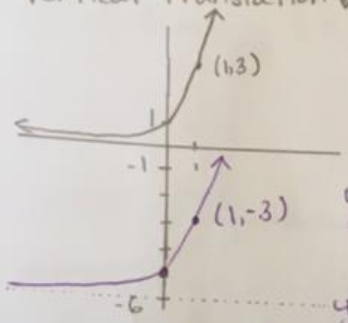
$y = 0.5 \sin x$

2. $y = 3^x - 6$ $k(x) = x^2 + 4$ $y = \sin x - 1$ $l(x) = \frac{1}{x} - 5$

$y = 3^x - 6$

Exponential

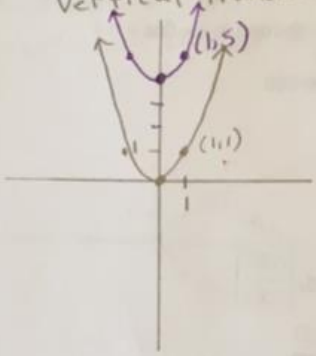
Vertical Translation ↓ 6



$y = x^2 + 4$

Quadratic

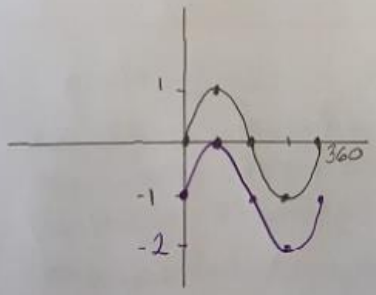
Vertical Translation ↑ 4



$y = \sin x - 1$

Sinusoidal

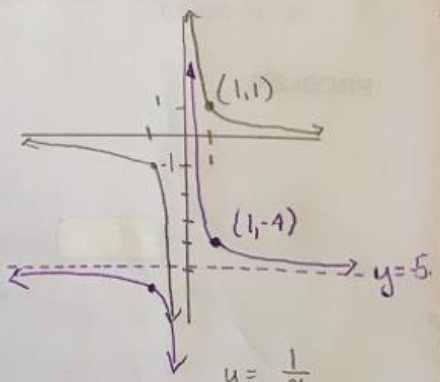
Vertical Translation ↓ 1



$l(x) = \frac{1}{x} - 5$

Reciprocal

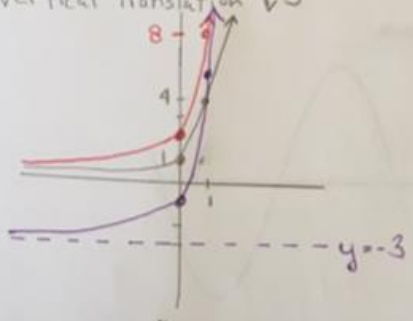
Vertical Translation ↓ 5



3. $m(x) = 2 \cdot 4^x - 3$ $y = -\sqrt{x} + 3$ $n(x) = \frac{3}{x} - 2$

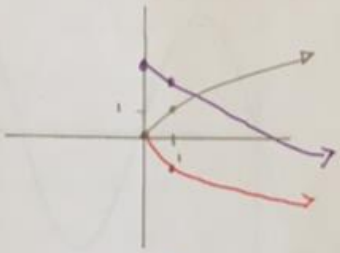
$m(x) = 2 \cdot 4^x - 3$

Exponential
Vertical Stretch (x2)
Vertical Translation ↓3



$y = 4^x$
stay $y = 2 \cdot 4^x$
$y = 2 \cdot 4^x - 3$

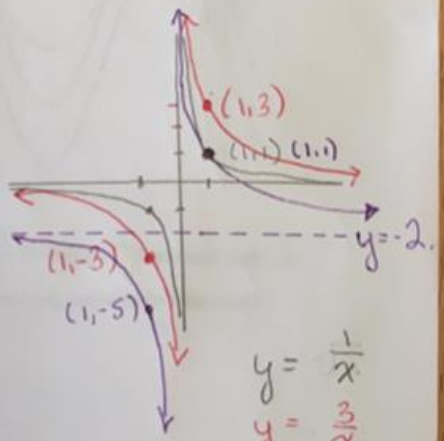
$y = -\sqrt{x} + 3$
Square Root
Reflection on x axis
Vertical Translation 13.



$y = -\sqrt{x}$
$y = -\sqrt{x} + 3$

$n(x) = \frac{3}{x} - 2$

Reciprocal Function
Vertical stretch (x3)
Vertical Translation ↓2.
Horizontal Asymptote ↓2
$y = -2$.



$y = \frac{1}{x}$
$y = \frac{3}{x}$
$y = \frac{3}{x} - 2$.