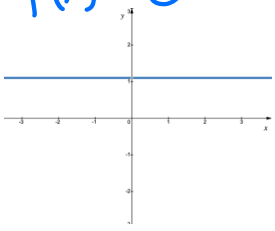
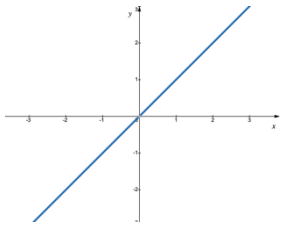
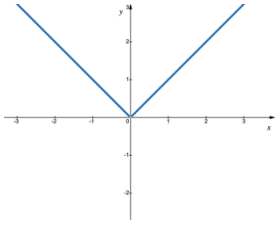
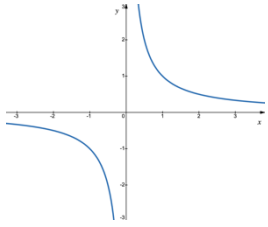
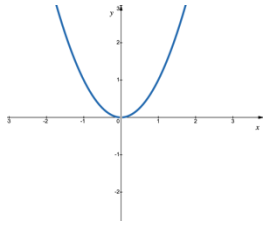
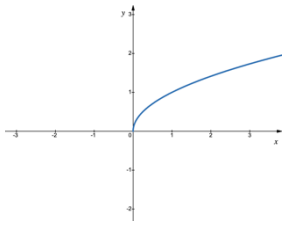
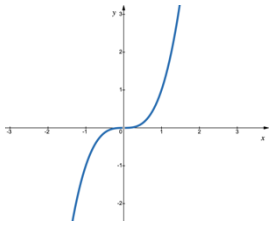
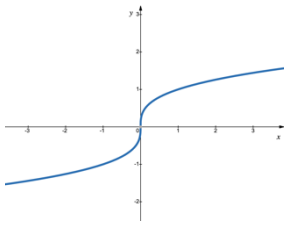
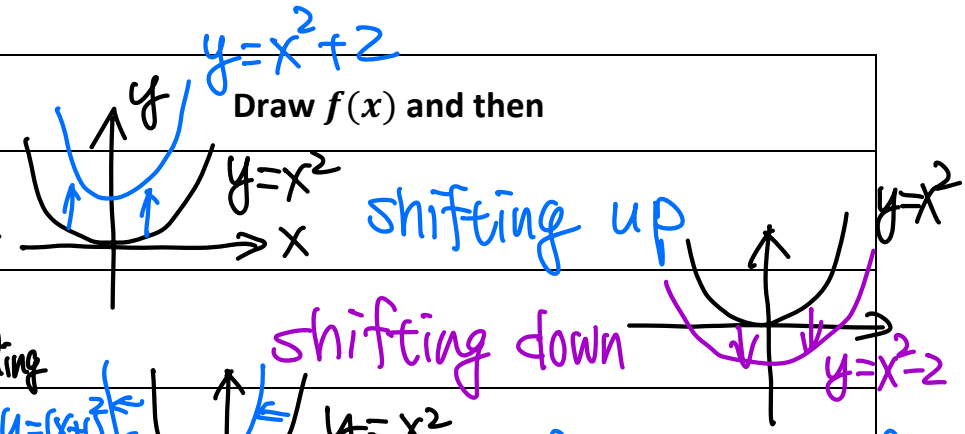
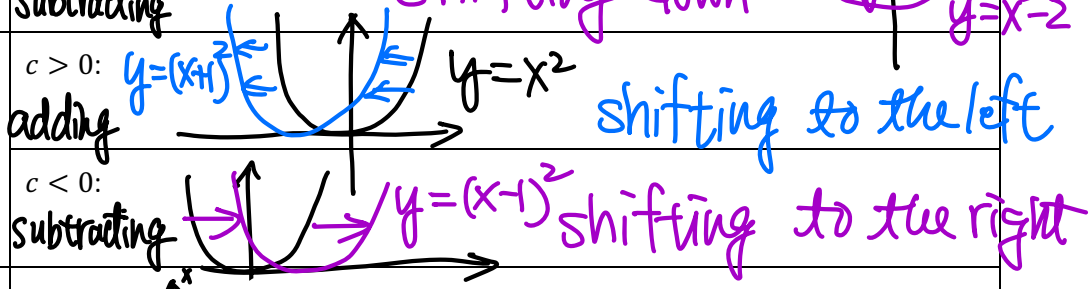
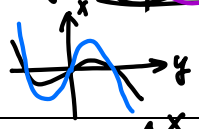
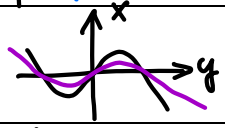
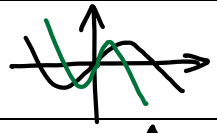
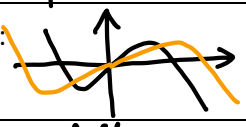
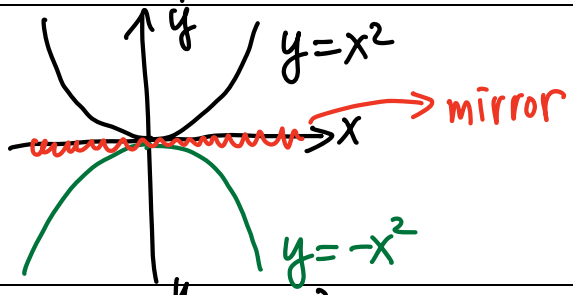
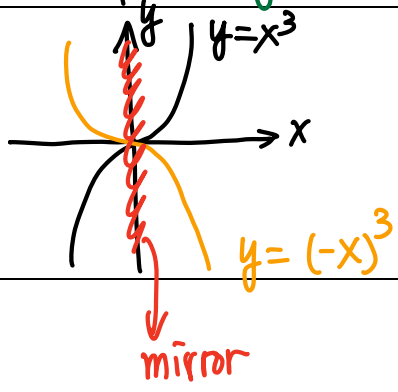
MAT 1375, Classwork4, Fall2024

ID:_____ Name: Sol

1. Complete the table of basic functions:

$f(x) =$ Constant $f(x)=c$	$f(x) =$ x	$f(x) =$ $\lvert x \rvert$	$f(x) =$ $\frac{1}{x}$
			
Domain: $(-\infty,\infty)$	Domain: $(-\infty,\infty)$	Domain: $(-\infty,\infty)$	Domain: $(-\infty,0)\cup(0,\infty)$
Range: $\{c\}$	Range: $(-\infty,\infty)$	Range: $[0,\infty)$	Range: $(-\infty,0)\cup(0,\infty)$
Odd or Even	Odd or Even	Odd or Even	Odd or Even
$f(x) =$ x^2	$f(x) =$ $\sqrt{x}$	$f(x) =$ x^3	$f(x) =$ $\sqrt[3]{x}$
			
Domain: $(-\infty,\infty)$	Domain: $[0,\infty)$	Domain: $(-\infty,\infty)$	Domain: $(-\infty,\infty)$
Range: $[0,\infty)$	Range: $[0,\infty)$	Range: $(-\infty,\infty)$	Range: $(-\infty,\infty)$
Odd or Even	Odd or Even	Odd or Even	Odd or Even

2. Complete the table

Transformation of $f(x)$	Draw $f(x)$ and then
Vertical shifts $y = f(x) + c$ add/subtract a constant (c) to the output	$c > 0$: adding  $c < 0$: subtracting shifting down
Horizontal shifts $y = f(x + c)$ add/subtract a constant (c) to the input	$c > 0$: adding  $c < 0$: subtracting
Vertical stretching/ shrinking $y = cf(x)$ multiply a positive constant (c) to the output	$c > 1$:  stretching
	$0 < c < 1$:  shrinking
Horizontal stretching/ shrinking $y = f(cx)$ multiply a positive constant (c) to the input.	$c > 1$:  shrinking
	$0 < c < 1$:  stretching
Reflection about the x-axis $y = -f(x)$ multiply "-1" to the output	
Reflection about the y-axis $y = f(-x)$ multiply "-1" to the input