

Graphing Assignment

I can apply the "shifts" rule to any of the parent graphs.

I know the parent graphs

The parent graphs, $y = f(x)$, are shown below for 4 different functions. For each of the 4 parent graphs you will do 6 translations. This is a total of 24 total graphs. Please organize your work with a parent function at the top of a section, then show the 6 translations for that parent's graph. Then show the next parent graph on your paper, and do the 6 translations.

Our Translation Rule for this Unit

$Y = a(x-h) + k$ This rule transcends any single function. The rule is the same for all of them.

"a" will make the graph stretch or shrink vertically

"h" moves the parent graph left or right

"k" moves the parent graph up or down.

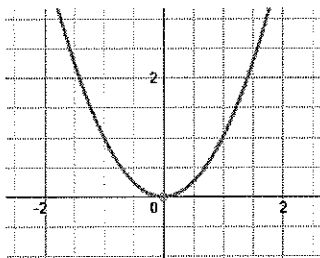
You can read this on Page 188

Translations to do to each parent graph:

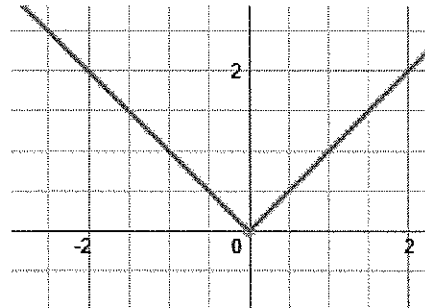
1) $Y = f(x) - 3$	2) $Y = f(x - 2)$	3) $Y = f(x - 2) + 2$	4) $Y = 2 * f(x)$	5) $Y = .5f(x)$	6) Y is replaced with $y - 3$
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The parent graphs are shown below. You started on a similar assignment yesterday. Today copy the parent graph on your paper. Then do the above 6 translations. For example, Translation number 1 should be the parent graph but moved down 3. The translation for number 2 should be the parent graph but moved 2 to the right. The translation for number 3 is moving 2 to the right and 2 up...and so on

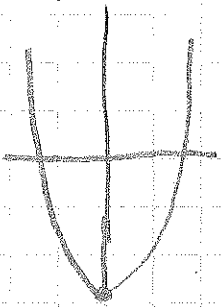
1) $y = x^2$



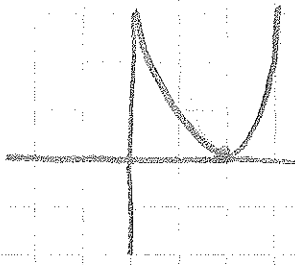
2) $y = |x|$



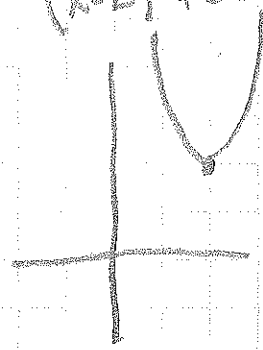
① $y = f(x) - 3$
 $f = x^2 - 3$



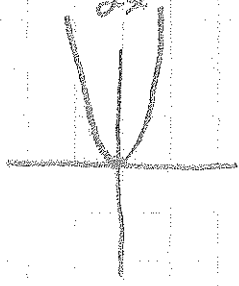
b) $y = f(x-2)$
 $y = (x-2)^2$



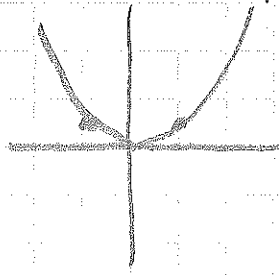
c) $f(x-2) + 2$
 $(x-2)^2 + 2$



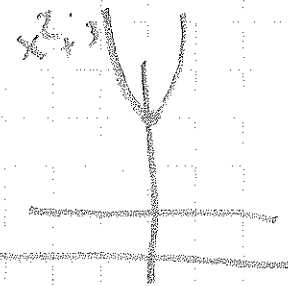
d) $y = 2f(x)$
 $2x^2$



e) $y = .5f(x)$
 $.5x^2$

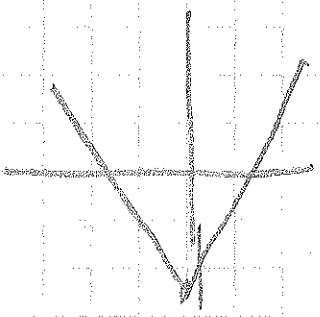


f) $y - 3 = f(x)$
 $y = f(x) + 3$

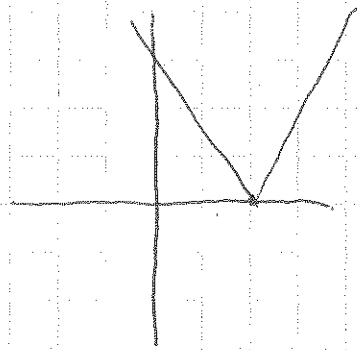


$y = |x|$

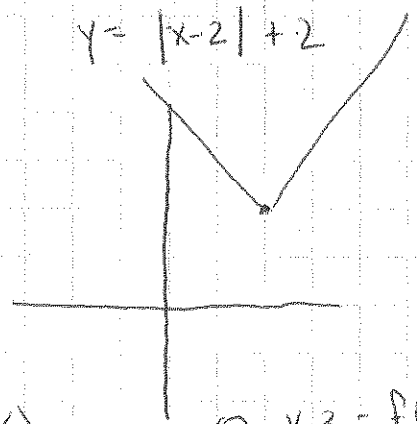
a) $f(x) - 3$
 $|x| - 3$



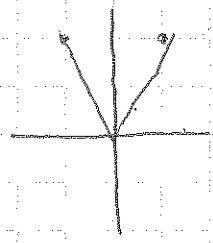
b) $y = f(x-2)$
 $y = |x-2|$



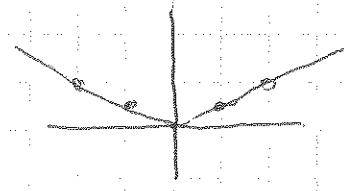
c) $y = f(x-2) + 2$
 $y = |x-2| + 2$



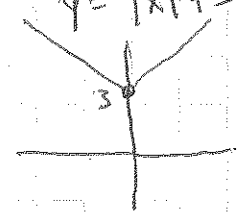
d) $y = 2 \cdot f(x)$
 $y = 2|x|$



e) $y = .5f(x)$
 $y = .5|x|$

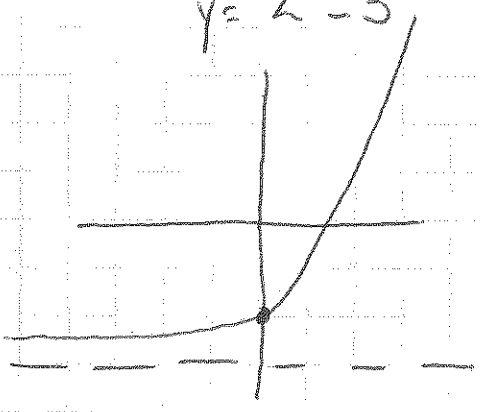


f) $y - 3 = f(x)$
 $y = f(x) + 3$
 $y = |x| + 3$

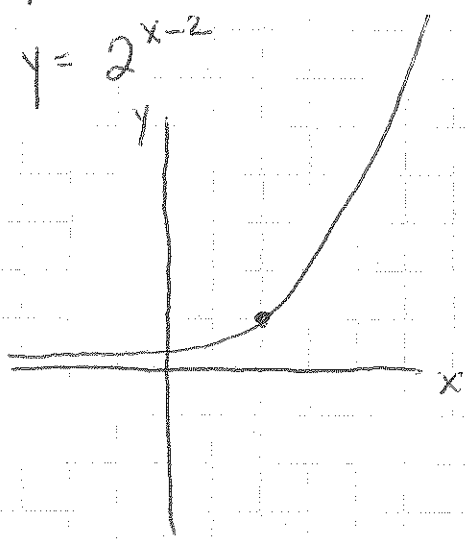


$y = 2^x$

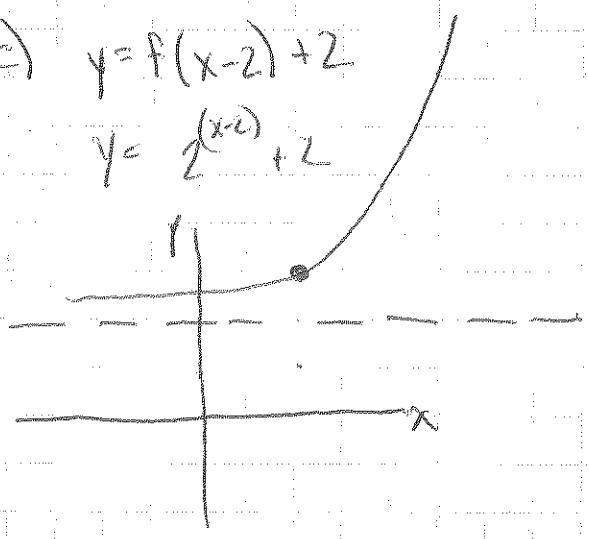
③ $y = f(x) - 3$
 $y = 2^x - 3$



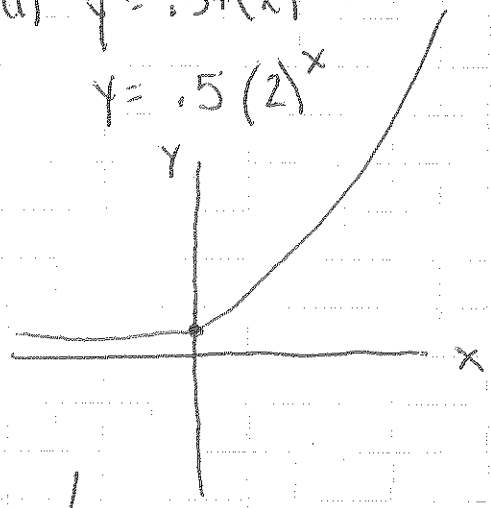
b) $y = f(x-2)$
 $y = 2^{x-2}$



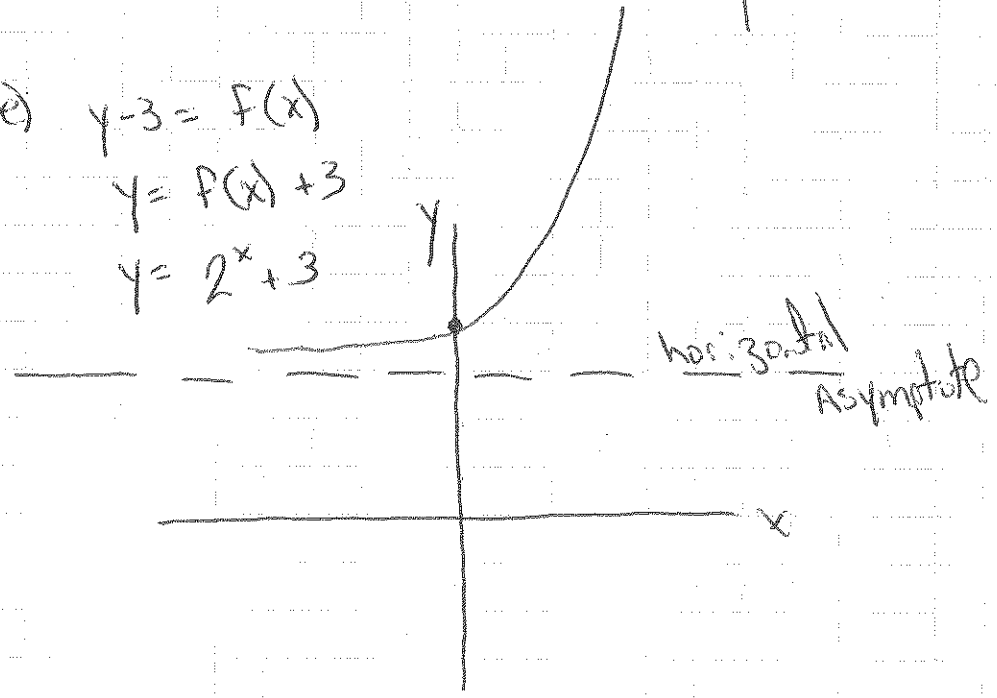
c) $y = f(x-2) + 2$
 $y = 2^{(x-2)} + 2$



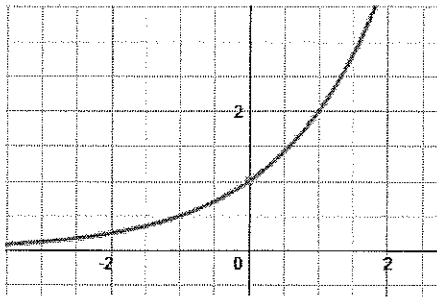
d) $y = .5f(x)$
 $y = .5(2)^x$



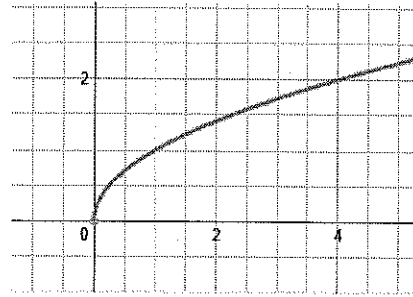
e) $y-3 = f(x)$
 $y = f(x) + 3$
 $y = 2^x + 3$



3) $y = b^x$



4) $y = \sqrt{x}$



Things to show in your graphs:

- All graphs should be very clear and very neat.
- Describe the 1-1 initial relationship that is present
- Describe any asymptote that is in the function (We have not talked about this yet...)
- Describe the domain and range of the function. (Domain and range are things that you have worked on in the past. Domain is asking for the x values that can go into the function. Range is referring to the y values that come out of the function.

Review Problems:

1) $f(x) = 3(x+1)^2 - 4$

a) $f(5) = \underline{104}$

b) $f(n) = \underline{3(n+1)^2 - 4}$

c) $f(x+2) = \frac{3(x+2+1)^2 - 4}{3(x+3)^2 - 4}$

2) If $f(13) = 18$ what is the ordered pair? $(\underline{13}, \underline{18})$

3) If $f(25) = 327$ what is the ordered pair? $(\underline{25}, \underline{327})$

(Review from Intermediate Algebra) The standard form of a line can be written as $ax + by = c$

Identify the values of a, b, and c for each of the following equations:

a) $4x + 3y = 12$

$a = 4$
 $b = 3$
 $c = 12$

b) $-x + y = 5$

$a = -1$
 $b = 1$
 $c = 5$

c) $7x - y = 1$

$a = 7$
 $b = -1$
 $c = 1$

d) $3x = -6$

$3x + 0y = -6$
 $a = 3$
 $b = 0$
 $c = -6$