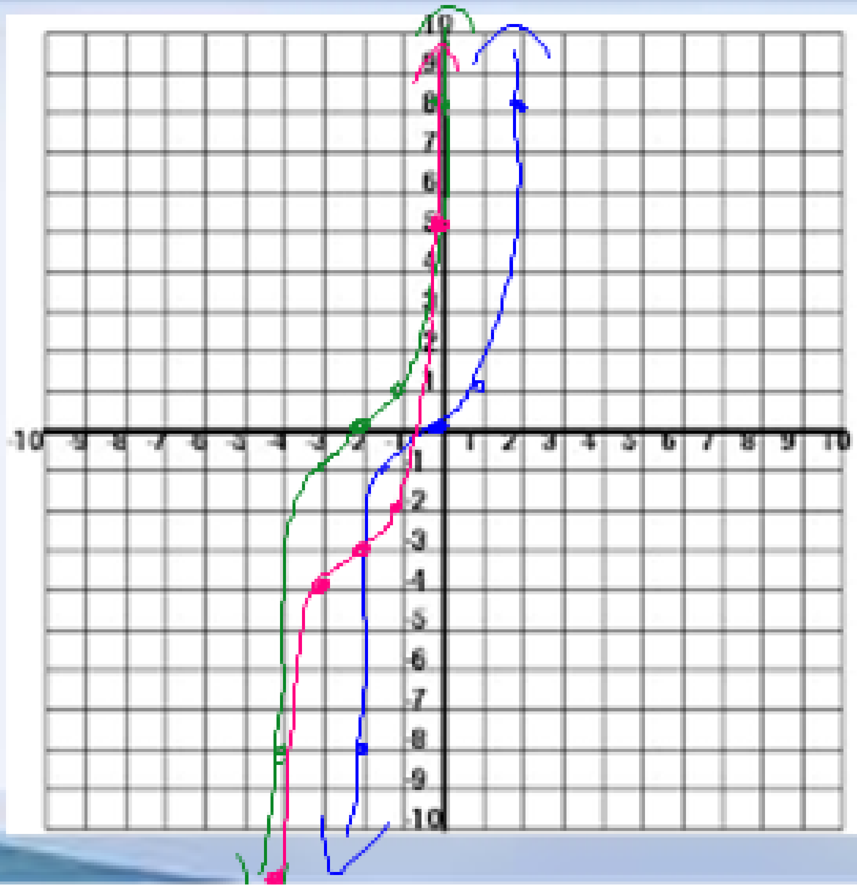
Take out yesterday's packet & Worksheet

Grab a Calculator

Homework Questions?



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

$f(x)=x^3$

$f(x)=(x+2)^3$

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

33

$(1, 3)$

$y = f(x)$

$(1, 6)$

$y = 2(f(x))$

34 $(4, 2)$

$y = f(x)$

$y = f(2x)$

Sections 2.5B

Graphing Techniques; Compressions & Stretches Day 2

Graph the following:

x^2

V.S.

$9x^2$ ← skimy ≀ tall

h.c.

$(3x)^2$ ← skinny ≀ tall

$$(3x)^2 = 3^2 \cdot x^2 = 9x^2$$

Graph the following:

x^3

$27x^3 \leftarrow$ skinny & tall

$(3x)^3 \leftarrow$ skinny & tall

$(3x)^3 = 3^3 \cdot x^3 = 27x^3$

Graph the following:

$\sqrt[3]{x}$

$\sqrt[3]{8x}$ ← taller.

$2\cdot\sqrt[3]{x}$ ← taller

$$\sqrt[3]{8x} = \sqrt[3]{8}\cdot\sqrt[3]{x} = 2\cdot\sqrt[3]{x}$$

Graph the following:

$\sqrt{x}$

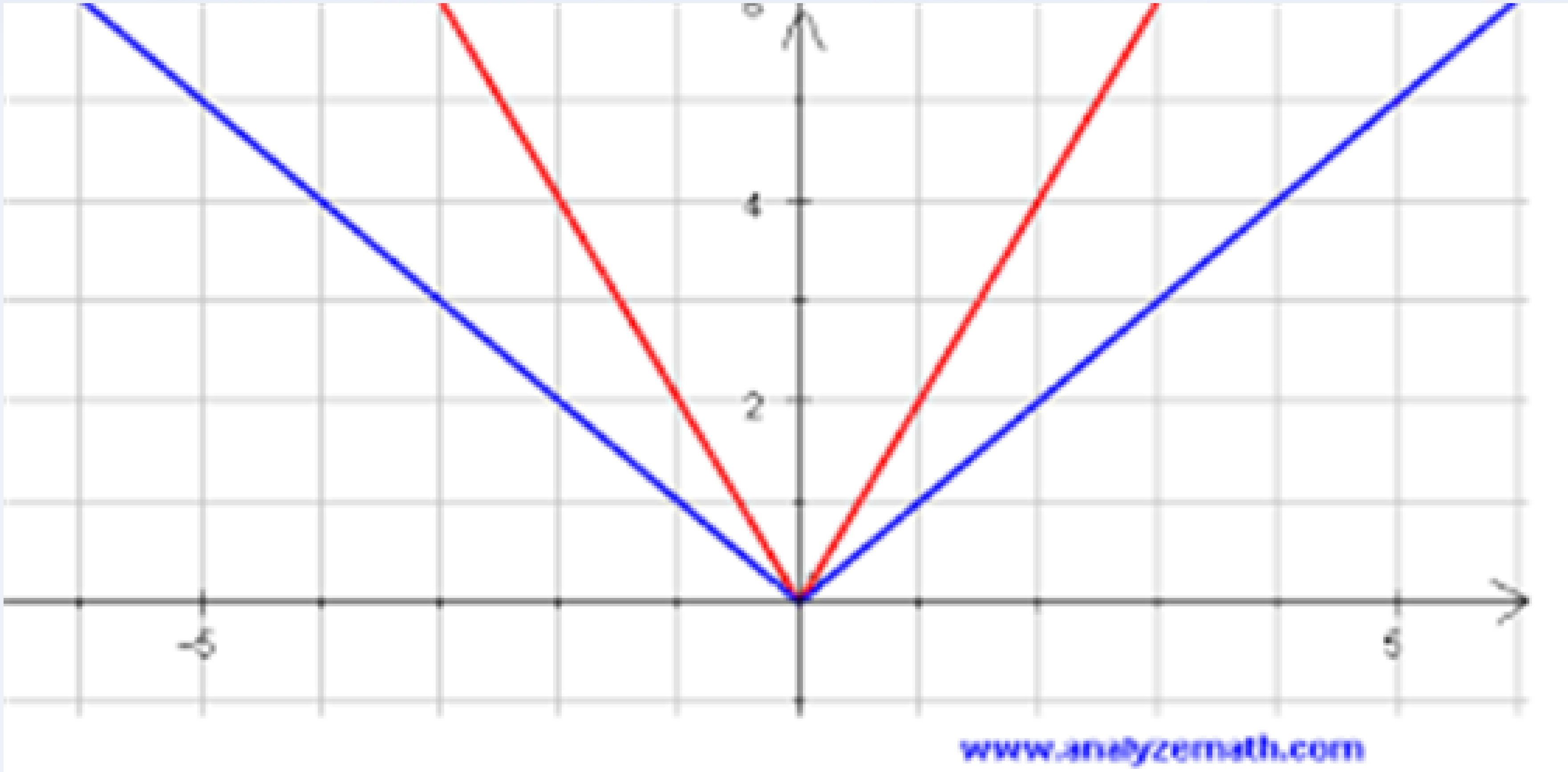
$\sqrt{4x}$ ← taller

$2\sqrt{x}$ ← taller

$\sqrt{4x} = \sqrt{4} \cdot \sqrt{x} = 2 \cdot \sqrt{x}$

Tall and Skinny

Vertical Compression = Horizontal Stretch



Horizontal Compression = Vertical Stretch

Vertical Compression/Stretch

When a number, a, is multiplied on the outside
$f(x) = af(x)$

If $a > 1$, it is a stretch

If $0 < a < 1$, it is a compression

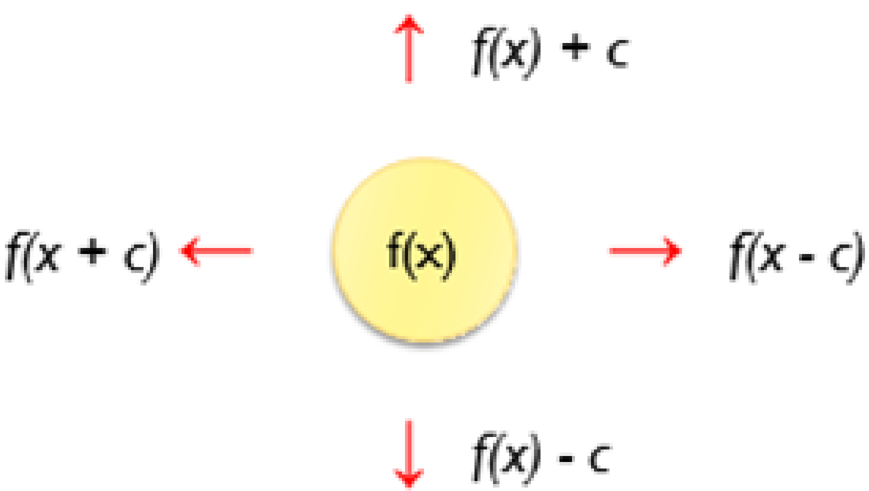
Horizontal Compression/Stretch

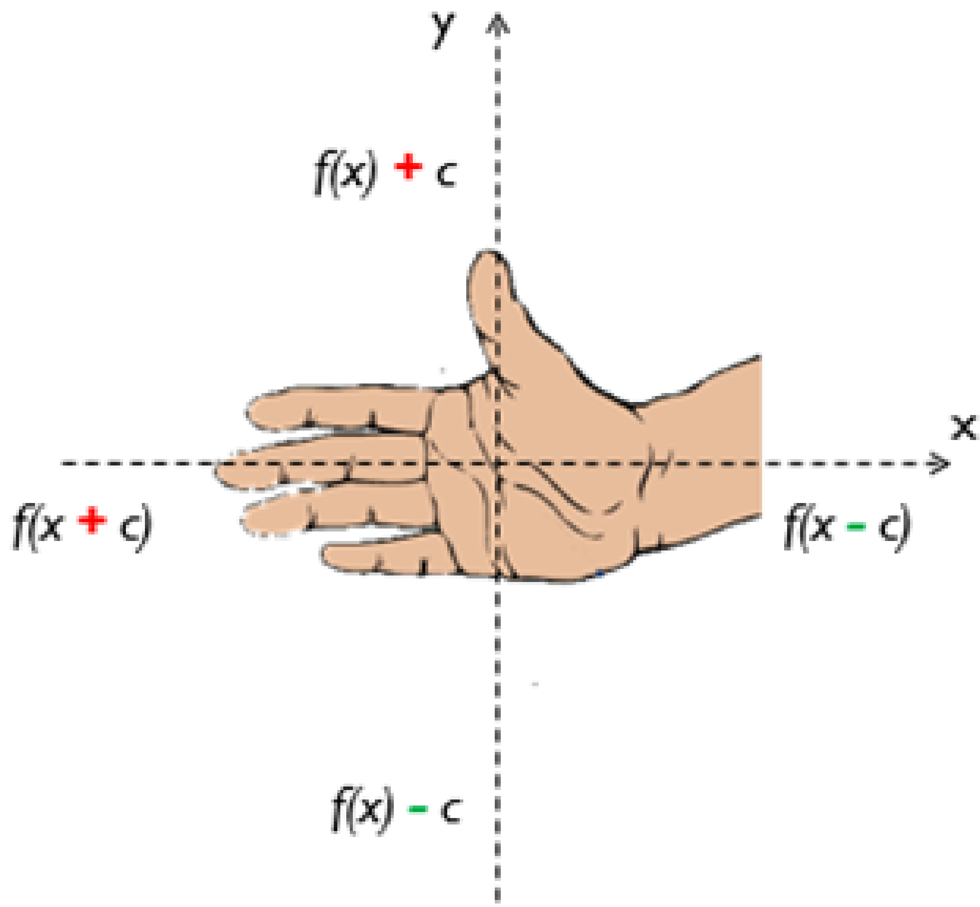
When a number, a, is multiplied on the inside
$f(x) = f(ax)$

If $a > 1$, it is a Compression

If $0 < a < 1$, it is a Stretch

Conclusion





Horizontal is opposite what you think....

$(x+2)^2$ <--- Actually moving neg. 2 horizontally.

$|2x|$ <--- Actually compresses horizontally.

Vertical	Horizontal
Outside	Inside
$a > 1$ = stretch	$a > 1$ = compression
$a < 1$ = compression	$a < 1$ = stretch.

Inside Hor.

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

2 units right

$f(x) = x^2 - 5$

down 5 units

$f(x) = (3x)^3$

Outside Vert.

$f(x) = 3\sqrt{x}$

V. S.

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

H. stretch!

$f(x) = \sqrt{\frac{1}{2}x}$

H.S.

$f(x) = \frac{1}{2}|x|$

$f(x) = 3\sqrt{x}$

$f(x) = \frac{1}{2}\sqrt{x}$

$f(x) = 26|x|$

$f(x) = 3x^2$

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

$f(x) = |2x|$

homework

P.108

#25, 26, 33, 34, 47, 48, 50

List if its a stretch or compression and by how much.

Work on Worksheet