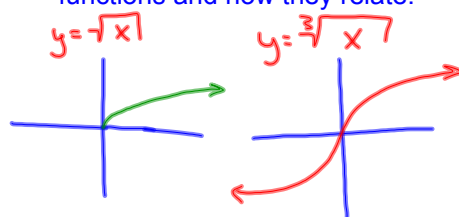# Bellwork:

Get your homework out and be
ready to grade it.

REMEMBER: NO LATE WORK!!!
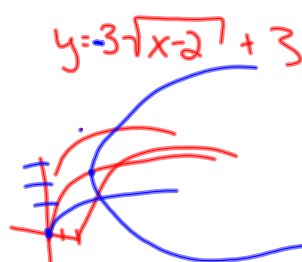
Chapter 6.5: Graph Square
Root and Cube Root Functions

- Helps to the know the parent
functions and how they relate.

$y = \sqrt{x}$ $y = \sqrt[3]{x}$

$$y = a\sqrt{x-h}+k \quad y = a\sqrt[3]{x-h}+k$$

upside down?
Vertical stretch/shrink

up/down

opp of h
moves L/R

$y = -3\sqrt{x-2} + 3$

Parent functions!!!!

$y = \sqrt{x}$

$y = x^2$

D: x ≥ 0
R: y ≥ 0
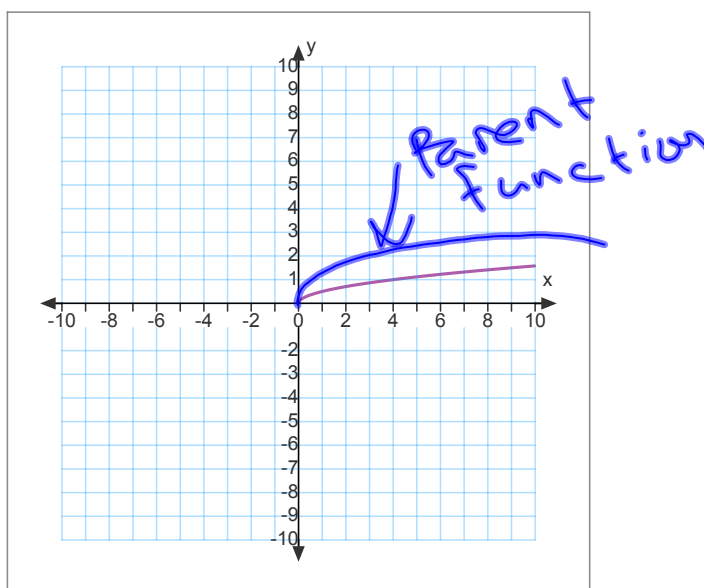
∈

D: x ∈ ℝ
R: y ∈ ℝ
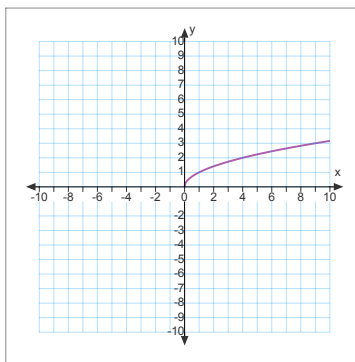
$y = \sqrt[3]{x}$

$y = x^3$
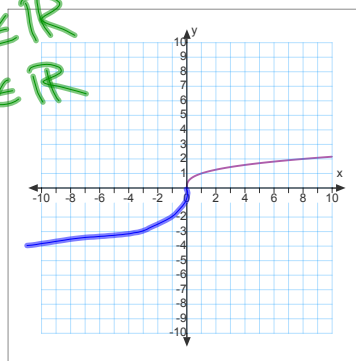
ex. Graph and give the domain and range.
Compare to the parent function.

$y = \dfrac{1}{2}\sqrt{x}$

shrink
by ½

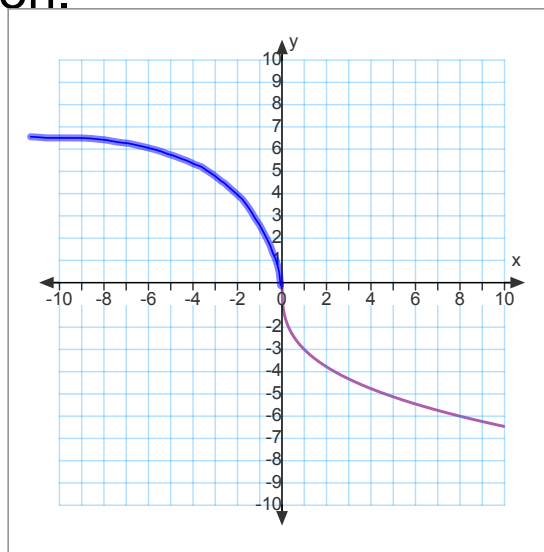Parent function

ex. Graph, give domain and range, compare
to the parent function.

$$y = -3\sqrt[3]{x}$$

upside down (annotation pointing to negative sign)
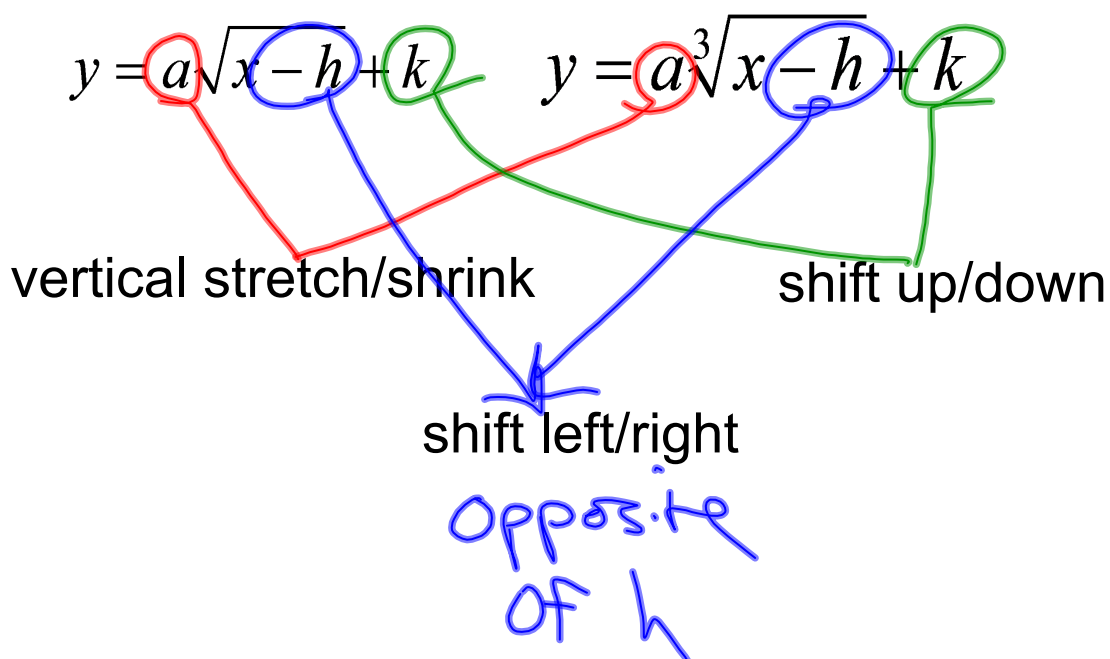
stretch by 3 (annotation pointing to the 3)

ex. The period of a pendulum is the time the
pendulum takes to complete one back and
forth swing. The period T(in sec.) can be
modeled by T=1.11sqrt(l) where l is the
pendulum's length(in ft).

- Graph the model   *graph* $y = 1.11\sqrt{x}$
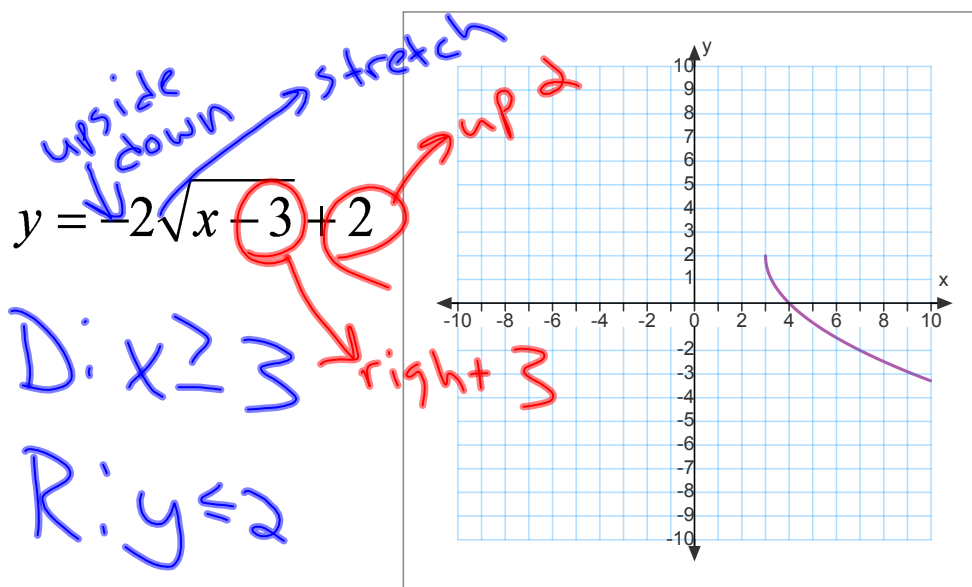- How long is a pendulum with a period of
3 sec?

solve: $3 = 1.11\sqrt{x}$

$x \approx 7.3 \text{ ft}$

3

Translating Radical Functions:

$$y = a\sqrt{x-h} + k \qquad y = a\sqrt[3]{x-h} + k$$

vertical stretch/shrink   shift up/down

shift left/right

opposite
of h

ex. graph and give domain/range. Compare
to parent function.

upside
down   →stretch

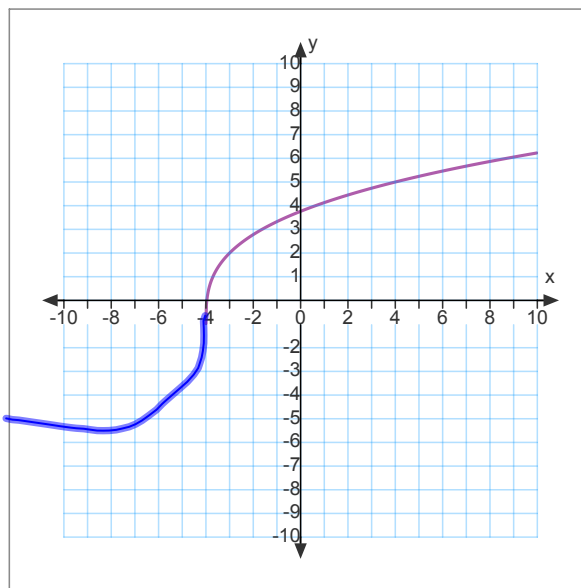$$y = -2\sqrt{x-3} + 2$$ up 2

D: x ≥ 3   → right 3

R: y ≤ 2

ex. graph, give domain/range, compare to parent function.

$$y = 3\sqrt[3]{x+4} - 1$$

Stretch by 3
down 1
left 4

D: $x \in \mathbb{R}$
R: $y \in \mathbb{R}$

Homework: Ch 6.5 pg.449
#'s 16-19,28-32e,36