How do we translate each function 6 units left ?

$y = .5(x)^2$

$y = .5(x)^3$

$y = .5(x+6)^2$

$y = .5(x+6)^3$
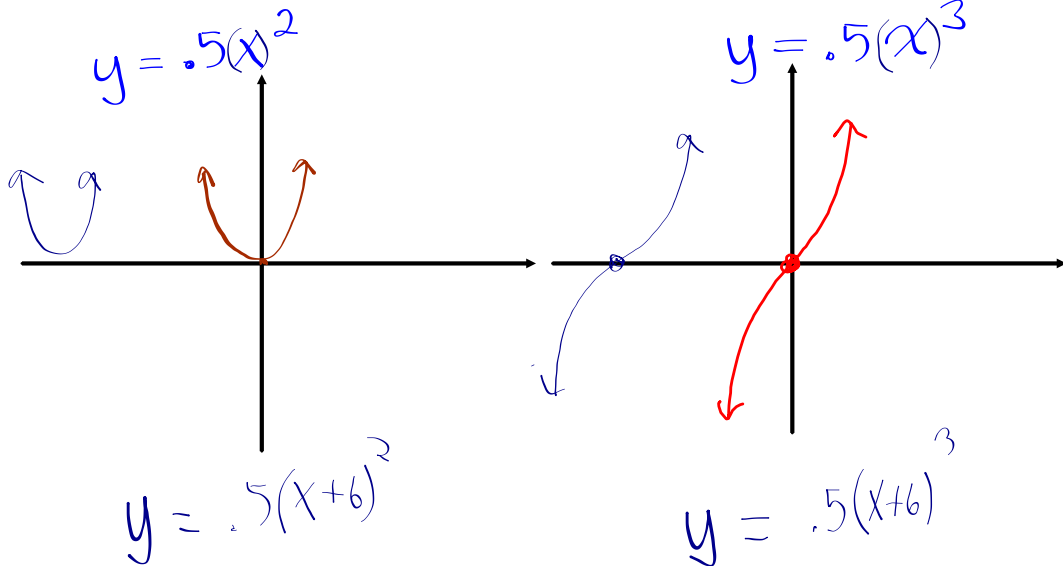
HW Tally ➡️

Pick up the Warm Up

: sketch $y = x^2$

sketch $y = x^3$

sketch $y = (x-3)^2 - 8$

sketch $y = (x-3)^3 + 1$
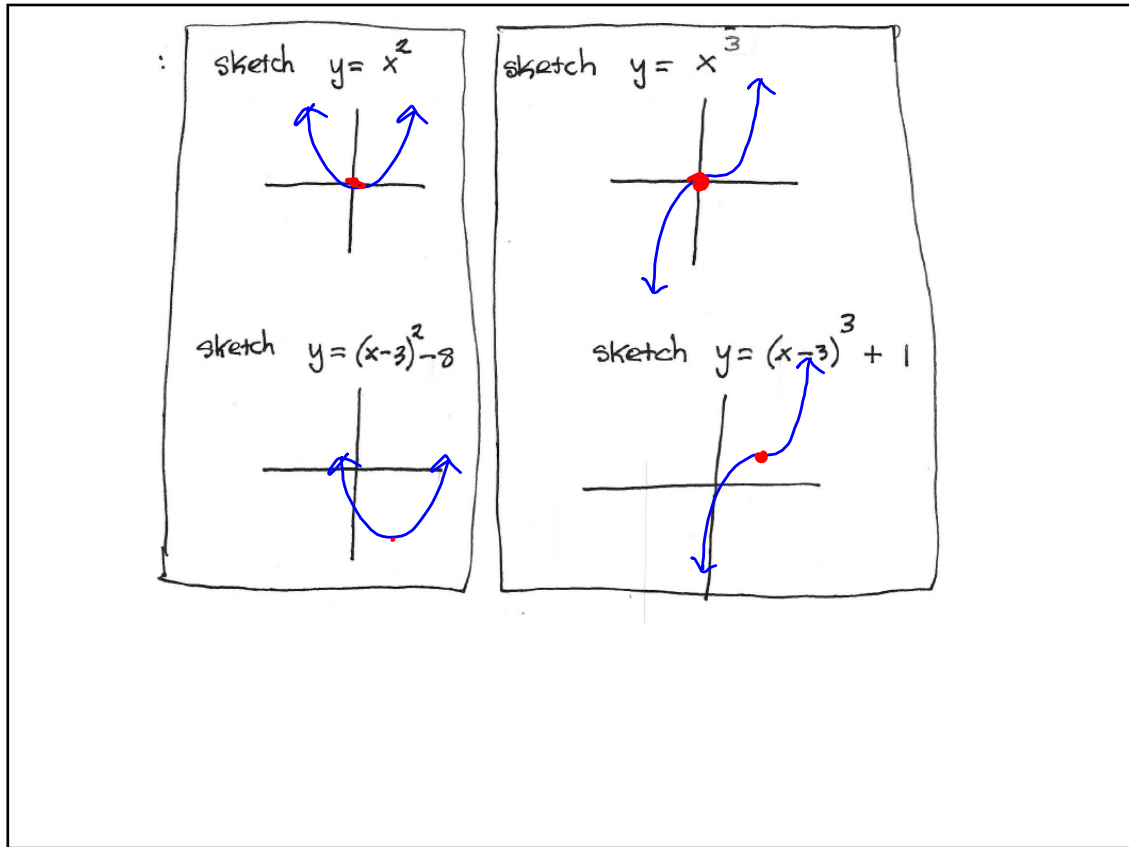
② Write each expression in simpler rad

$2\sqrt{x} + 3\sqrt{y} + 6\sqrt{x} + \sqrt{y} = 8\sqrt{x} + 4\sqrt{y}$

$(3\sqrt{5})^2 = 3^2 \cdot \sqrt{5}^2 = \boxed{45}$
$\qquad\qquad 9 \cdot 5$

$\dfrac{\sqrt{72}}{\sqrt{2}} = \sqrt{\dfrac{72}{2}} = \sqrt{36} = 6$

$\sqrt{\dfrac{5}{16}} = \dfrac{\sqrt{5}}{\sqrt{16}} = \boxed{\dfrac{\sqrt{5}}{4}}$

③ Russell Wilson was trying to use the x-intercept method to rewrite the parabola $y = x^2 - 10x + 16$ to graphing form. Finish what he started.

$0 = x^2 - 10x + 16$

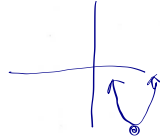$0 = (x - 8)(x - 2)$

$x - 8 = 0 \qquad x - 2 = 0$

$x = 8 \qquad x = 2$

$Avg = \dfrac{8 + 2}{2}$

$= 5$

$(5, -9)$

Vertex

$f(5) = 5^2 - 10(5) + 16$

$25 - 50 + 16$

$-25 + 16$

Graphing form is $y = (x-5)^2 - 9$

---

④ Use the Completing the Square method to check the result in #3

$y \overset{+25}{=} \underline{x^2 - 10x \overset{+25}{} + 16}$

$\left(\dfrac{-10}{2}\right)^2 = 25$

$y + 25 = (x - 5)^2 + 16$
$\quad -25 \qquad\qquad -25$

$y = (x - 5)^2 - 9$

x^2	$-5x$
$-5x$	

$\left(\dfrac{b}{2}\right)^2 =$

You have taken 3 LCQ's. On has been dropped.Once we get to 6, a second LCQ will be dropped, etc.

LCQ 3 MAX:16.00 PTS:10.00 12/17/2018		LCQ 2 MAX:9.00 PTS:9.00 12/11/2018		LCQ 1 MAX:5.00 PTS:10.00 12/10/2018	
LCQ's	S	LCQ's	S	LCQ's	S
14		6		5	
0	d	3		1	
15		6	d	5	
15	d	9		5	
14		9		3	
14		7	d	5	
13		5	d	5	
9		5		1	d
15		7		5	

HW Questions .

Just pick up the

solutions and check

& learn !

72a) exponential equation

$(2, 9)$ $(4, 324)$ double Substitution

$y = ab^x$ $\qquad$ $y = ab^x$

$ab^2 = 9$ $\qquad$ $ab^4 = 324$

$$\frac{ab^4}{ab^2} = \frac{324}{9}$$

$$b^2 = 36$$

$$y = (6)^x$$

$$\overline{\underset{①}{}} \quad \frac{9}{②} \quad \overline{\underset{③}{}} \quad \frac{324}{④}$$

$9 \cdot r \cdot r = 324$

$\boxed{12b}$ $(-1, 40)$ $(0, 12)$ exp. function
$$y = ab^x$$

$\boxed{73a}$ $y = 2x^2 + 3x - 5$ Find x and y
                                                      intercepts

x-inter $2x^2 + 3x - 5 = 0$
  y = 0
                                              $\boxed{} \times$

f

January 22, 2020
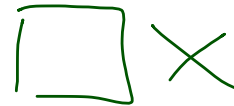
(b) $y = \sqrt{2x - 4}$

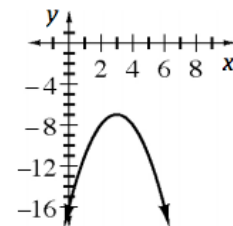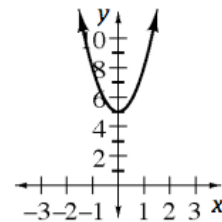9|a) $\sqrt{x} + \sqrt{y} + 5\sqrt{x} + 2\sqrt{y}$

$\sqrt{x} + 5\sqrt{x} + \sqrt{y} + 2\sqrt{y}$

$b \quad \left(2\sqrt{8}\right)^2$

2-74. See graphs at right.

    a: stretched parabola, vertex $(0, 5)$

    b: inverted parabola, vertex $(3, -7)$

2-75.   **a:** $x = \pm 5$ **b:** $x = \pm \sqrt{11}$

date for the Ch. 2 Test:

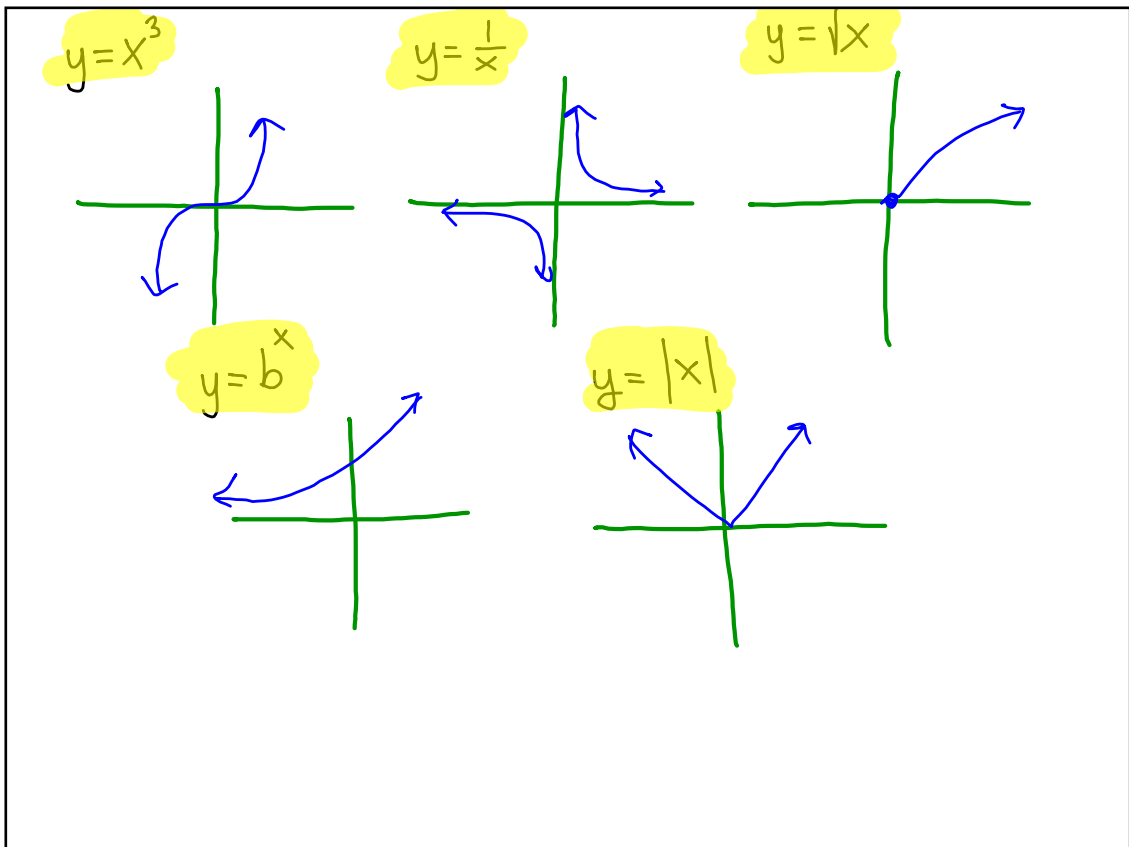**Thursday, January 30**
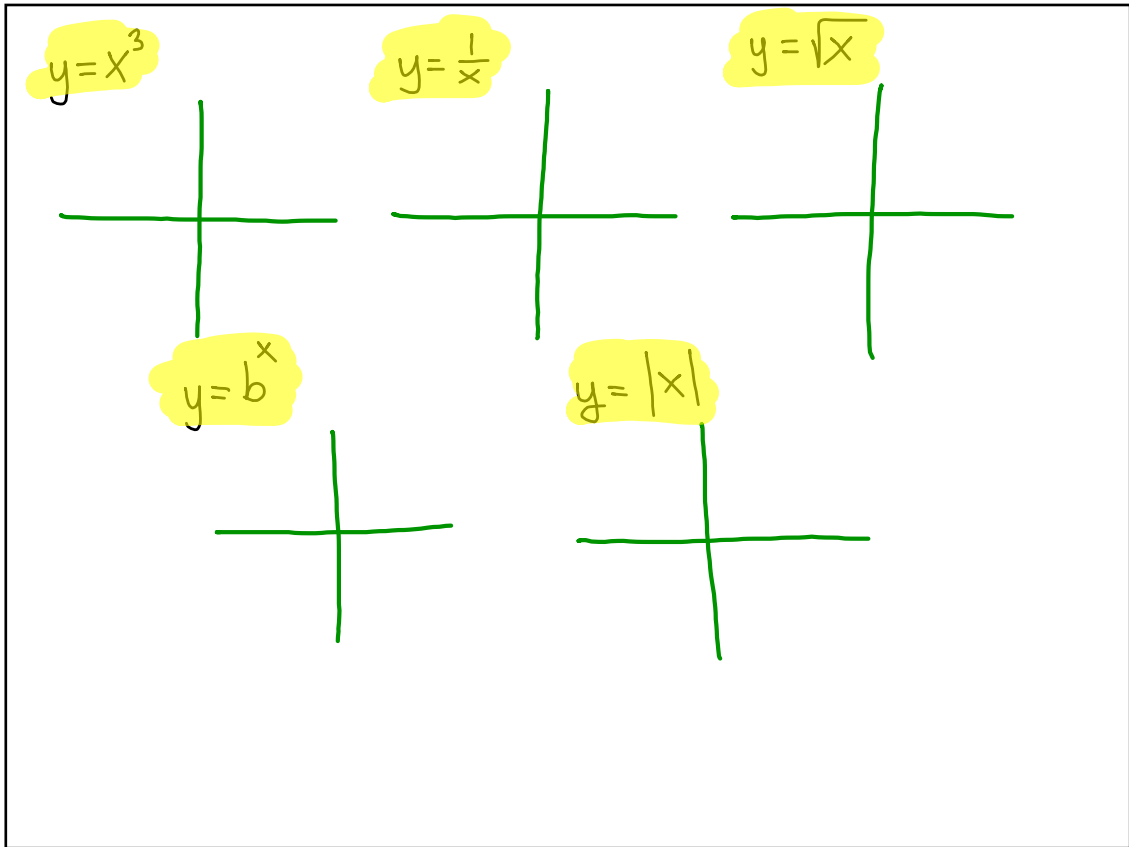
🙂

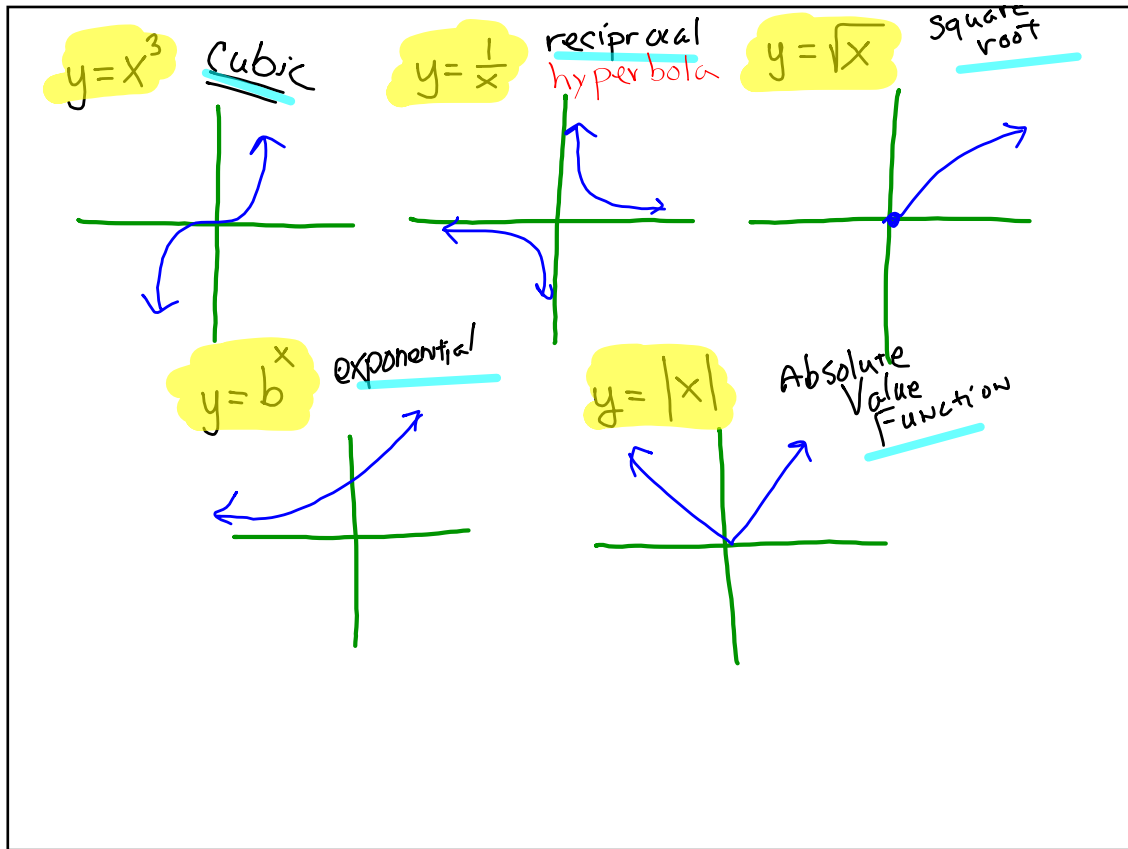Goal for the rest of Ch2

Transform 5 new functions
(beyond parabolas)

but first......
Let's write down
the 5 parent functions
from this chapter.

QUICK Sketch of
5 New Parents

↗

NOTES

$y = x^3$

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

$y = \sqrt{x}$

$y = b^x$

$y = |x|$

$y = x^3$

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

$y = \sqrt{x}$

$y = b^x$

$y = |x|$

y = x³   Cubic

y = 1/x   reciprocal   hyperbola

y = √x   Square root

y = bˣ   exponential

y = |x| Absolute Value Function

With your side partner
discuss the Domain of each
(don't need to write down)

Now the range
of each

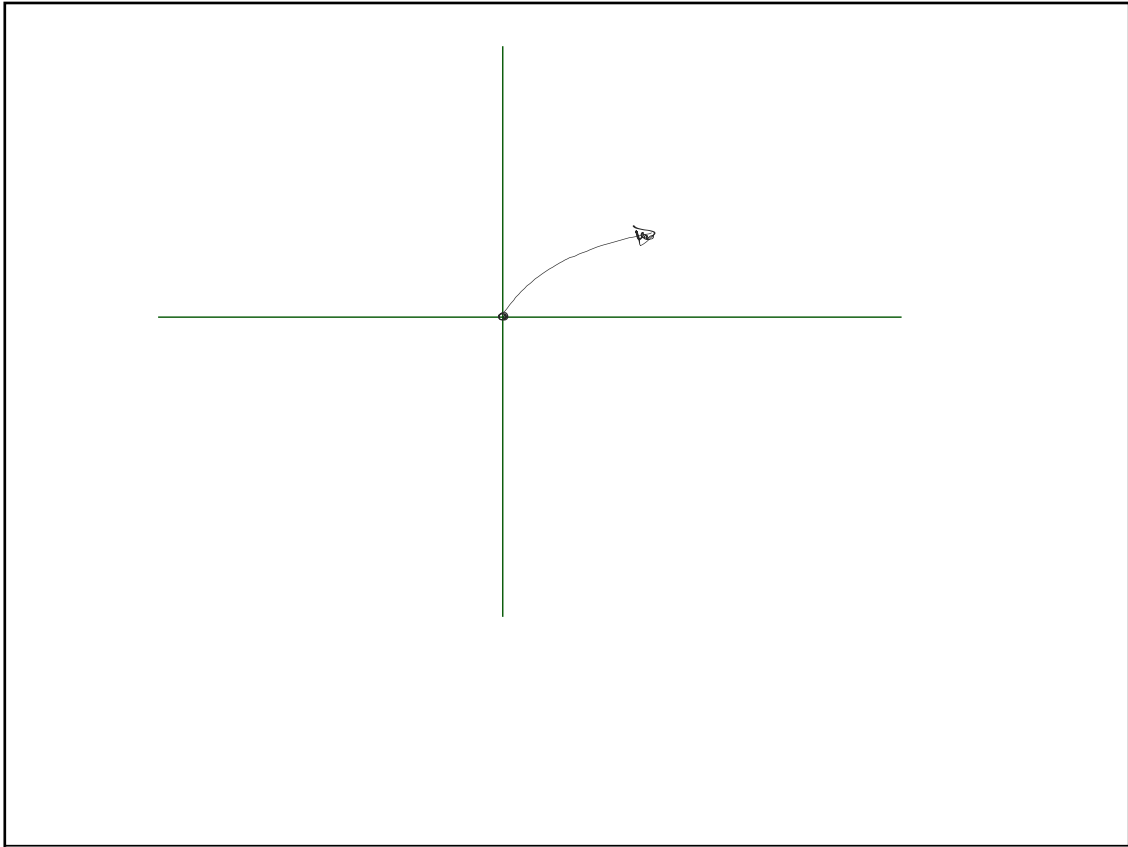**You are about to make transformations with each function**

1. Sketch first
2. Next to each sketch, write the function

[Think first..... GDC later if you need it at all]

$$y = \sqrt{x+4} + 6$$
①

$$y = 2\sqrt{x}$$
③

$$y = \sqrt{x}$$

②

$$y = -\sqrt{(x-5)}$$

$$= -\sqrt{x-5}$$
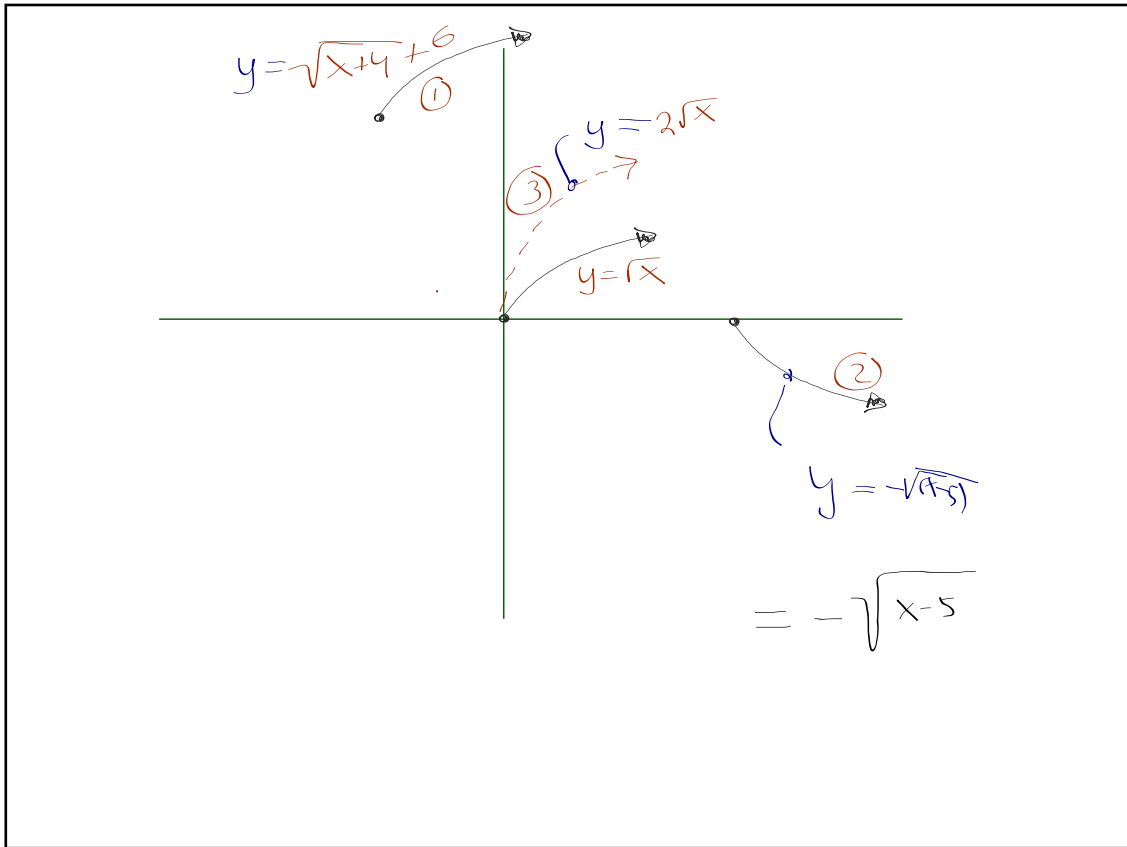
Perform each transformation, all on the same large sketch.

1. Translate 4 left, up 6

2. Translate 5 right with negative orientation.

3. Vertical Stretch by 2

4.   DOWN 30, left 800
      vertically compressed by $\frac{1}{3}$
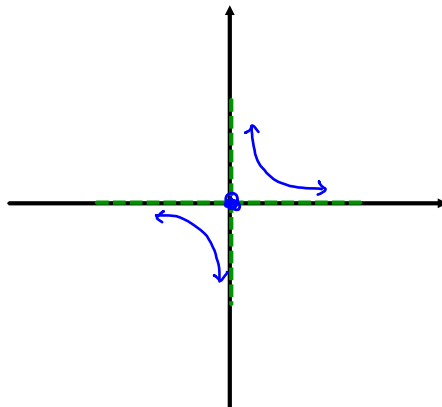
      but you dont have
      to sketch

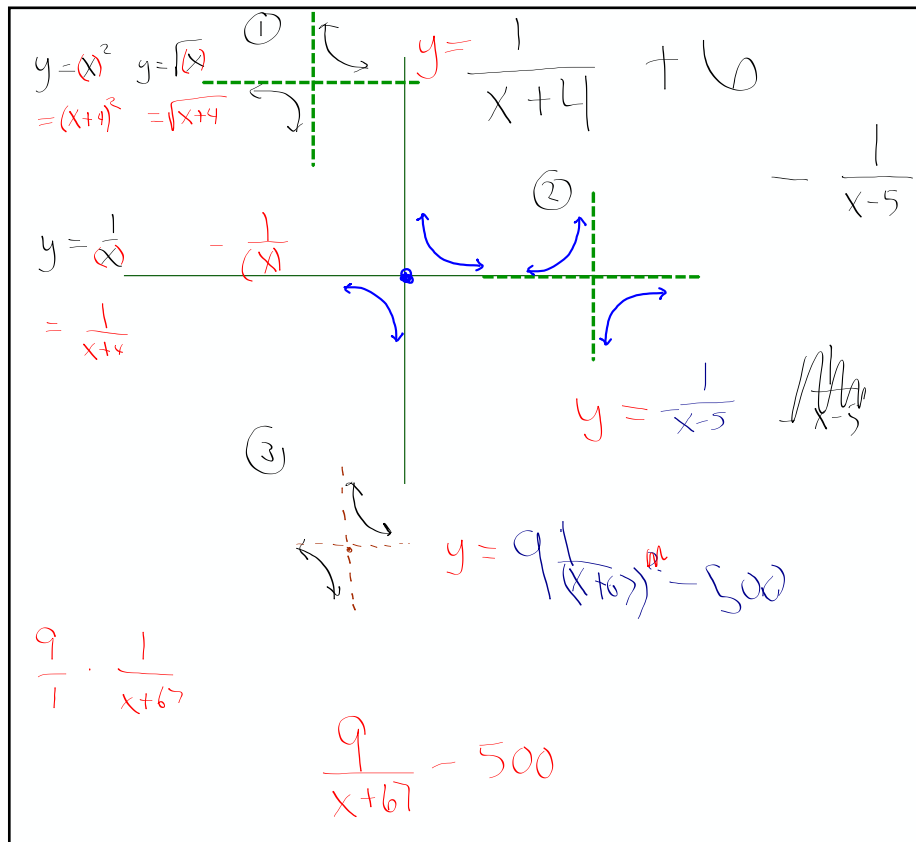$$y = \frac{1}{3}\sqrt{x+800} - 30$$

Next

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

CAUTION •   Shifts   of $y = \frac{1}{x}$

don't extend
   transformation

1. Translate 4 left, up 6

2. Translate 5 right with negative orientation.

3. Down 500, ~~down 67~~ *left* **67, vertically stretched by 9**

} don't have to sketch

---

① $y = (x)^2$ $y = \sqrt{x}$

$= (x+4)^2$ $= \sqrt{x+4}$

$y = \dfrac{1}{x+4} + 6$

$- \dfrac{1}{x-5}$

$y = \dfrac{1}{x}$ $- \dfrac{1}{(x)}$

$= \dfrac{1}{x+4}$

②

$y = \dfrac{1}{x-5}$

③

$y = 9 \dfrac{1}{(x+67)} - 500$

$\dfrac{9}{1} \cdot \dfrac{1}{x+67}$

$\dfrac{9}{x+67} - 500$

in your
NOTES

- let's summarize -

One *general* way of writing an equation for a
parabola is to use graphing form:

$$y = x^2 \qquad y = a(x-h)^2 + k$$

**With your group, write the <u>general</u> equation
for both of today's functions below your graphs**

a
h
k

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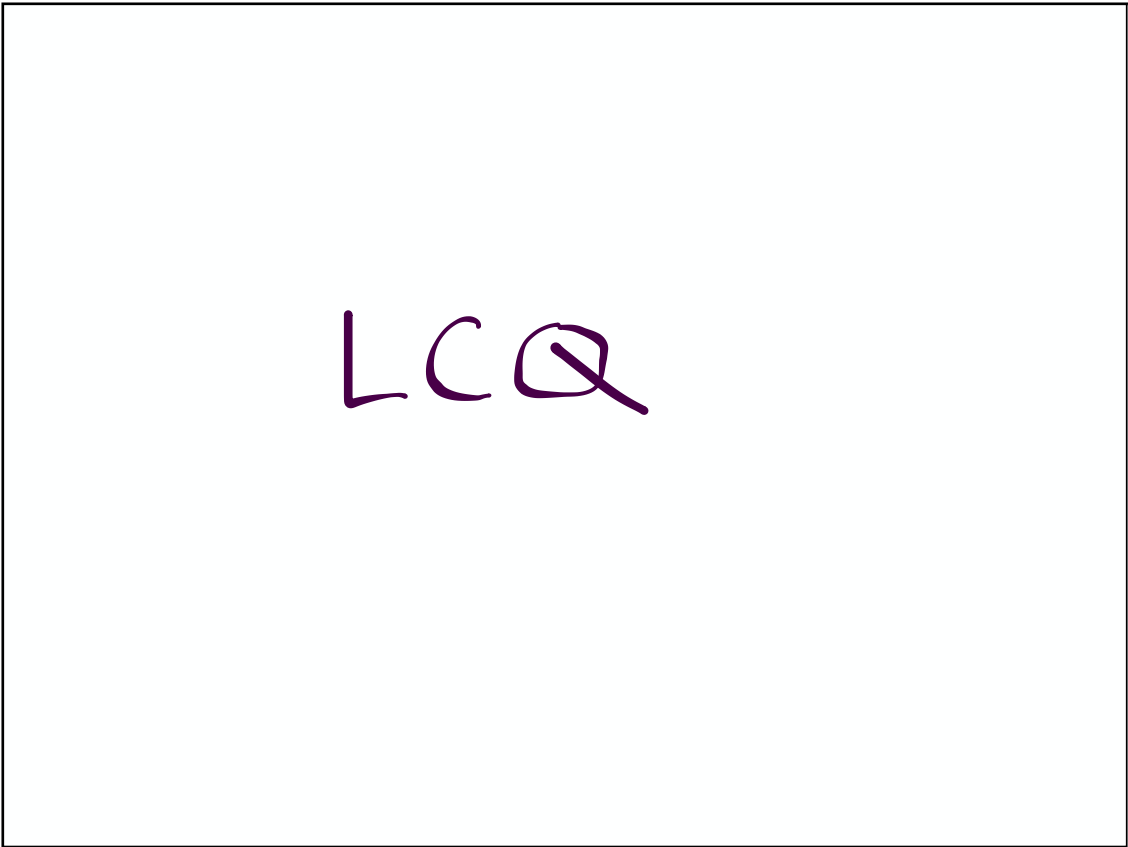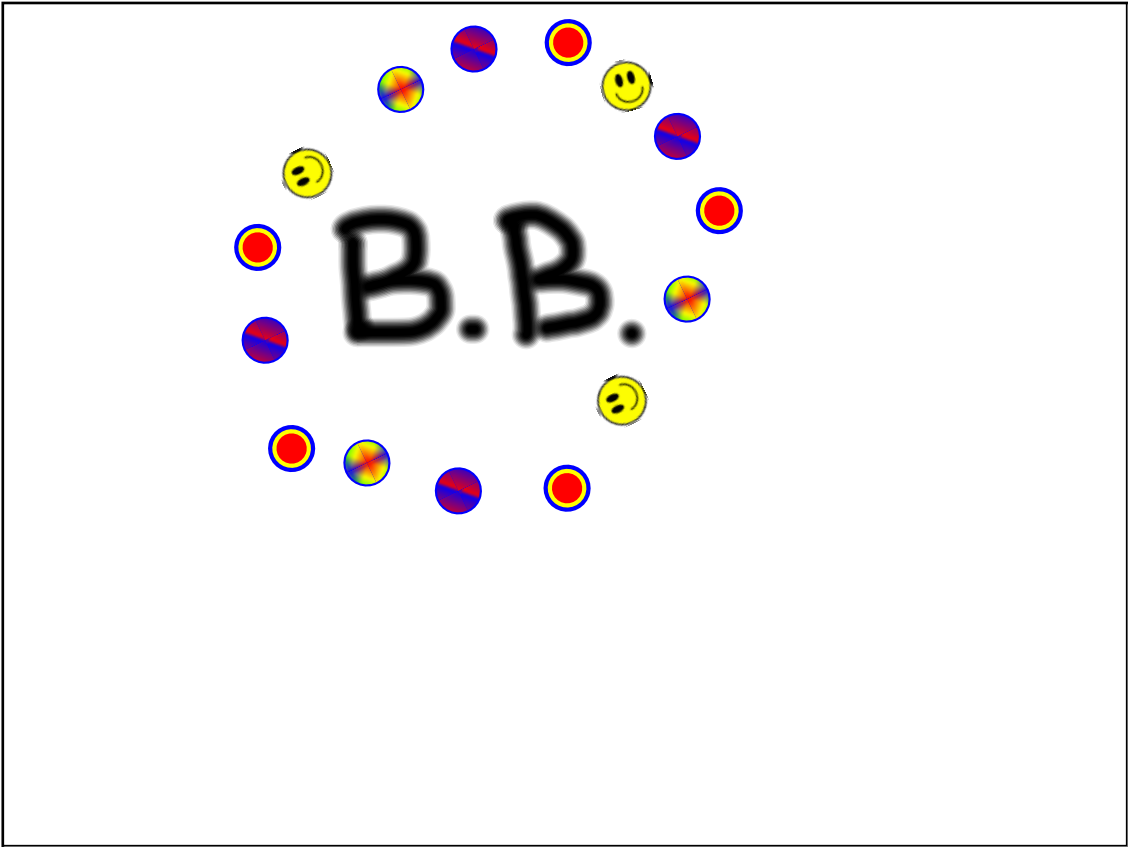
$$y = \frac{1}{x}$$

$$y = a\sqrt{x+h} + k$$
$$a\sqrt{x-h} + k$$

$$y = a\left(\frac{1}{x-h}\right) + k$$

$$\text{or } y = \frac{a}{x-h} + k$$

B.B.

LCQ

Assignment:

2 - 81-82, 84bd, 85, 86ac, 88, 90,92