① Let Me know right away if have any HW QUESTIONS

② Do the Warm Up

front side only 👀

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① Factor $n^2 - 49$ (HINT : use difference of Squares) $(n+7)(n-7)$

Factor $16x^2 - 25$ = $(4x + 5)(4x - 5)$

② what is the parent function of $y = (x-3)^2 + 6$ $y = x^2$

"   " "   "   "   " $y = 5\sqrt{x+1} - 7$ $y = \sqrt{x}$

"   " "   "   "   " $y = 2\left(\frac{1}{x+10}\right) - 18$ $y = \frac{1}{x}$

③ With each of the parent functions below, write a transformed function that has a vertical stretch of $\frac{up}{7}$, a horizontal shift left 20, and a vertical shift down 11.

a) **Parent**   **Transformation**

$y = |(x)|$ $y = 7|x + 20| - 11$

b) $y = \frac{1}{(x)}$ $7 \cdot \frac{1}{x+20} - 11$ or $\frac{7}{x+20} - 11$

c) $y = 3^x$ $y = 7(3)^{x+20} - 11$

④ The general form of a transformation of $y = x^2$ is $y = a(x-h)^2 + k$. What is the general form for

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

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

HW

⑥ $f(x) = \dfrac{\sqrt{x+4}}{3} - 2$

y-intercept

x-intercept(s)

① $2x - 4y = 4$
$3x + 5y = 3$

Assignment 2.2.1
day 2

Name _____

① without a GDC, sketch each function (remember too identify the parent first)

$y = \sqrt{x+4}$ $y = (x-5)^3$ $y = -\sqrt{x-2} - 3$ $y = \frac{1}{5}\left(\frac{1}{x}\right) + 3$

② Find both the y-intercepts and x-intercepts algebraically of $y = (x-3)^2 - 1$

y - int   x-int

③ Complete the square to convert to graphing form
(try, if you wans, to do so without the 'box')

$$y = x^2 - 4x + 9$$

④. complete the square to convert to graph form

$$y = 2x^2 - 16x + 30$$

Factoring Binomials

Factor each binomial equation (using the Difference of Squares shortcut)

Example: $9x^2 - 4 = (3x + 2)(3x - 2)$

1. $4x^2 - 1 =$

2. $x^2 - 9 =$

3. $36x^2 - 9 =$

4. $100x^2 - 81 =$

5. $25x^2 - 4 =$

6. $81x^2 - 121 =$

5. $25x^2 - 4 =$

6. $81x^2 - 121 =$

7. $x^2 - 16 =$

8. $144x^2 - 16 =$

9. $x^2 - 25 =$

10. $625 - 16x^2 =$

11. $100 - x^2 =$

12. $x^2 - 36 =$

13. $121x^2 - 49 =$

14. $49x^2 - 16 =$

Cross out the correct answers below. Use the remaining letters to complete the statement.

$(x+13)(x-13)$	$16(3x-1)(3x-1)$	$(x-4)(x+4)$	$(6x+5)(6x-5)$	$(25-4x)(25+4x)$	$(x+1)(x-1)$
THE	SUM	OFA	PRO	QUO	DUC
$(9+x)(9-x)$	$9(2x-1)(2x+1)$	$(x+7)(x-7)$	$(2x+1)(2x-1)$	$(9x+1)(9x-1)$	$(x+2)(x-2)$
TOF	TIE	THE	NTA	SUM	AND
$(10-x)(10+x)$	$(5x+3)(5x-3)$	$(x-5)(x+5)$	$(8x+1)(8x-1)$	$(11x-7)(11x+7)$	$(x-6)(x+6)$
WAS	DIF	HAS	FER	MAN	NER
$(x+18)(x-18)$	$(10x-9)(10x+9)$	$(x-3)(x+3)$	$(5x-2)(5x+2)$	$(7x+11)(7x-11)$	$(x+8)(x-8)$
ENC	THA	TIS	MYP	EOF	THE
$(x+15)(x-15)$	$(9x-11)(9x+11)$	$(x+9)(x-9)$	$(3x+2)(3x-2)$	$(7x-4)(7x+4)$	$(x+9)(x-9)$
SQU	ROB	ARE	ROO	LEM	TS.

15.   The factored form of the difference of the two squares is

__ __ __   __ __ __ __ __ __ __   __ __   __ __ __   __ __ __   __ __ __

__ __ __ __ __ __ __ __ __ __   __ __   __ __ __ __   __ __ __ __ __

Aim

Recognize Parent Functions
by looking at graphs or
equations of transformations

(a.k.a. "think backwards".)

but first

HW lottery

brainstorm

all of the function
types you can think
of

cubic
expon.
abs. value
linear
sq. root
quadratic
reciprocal

lines

parabolas

hyperbolas

cubics

square root

exponentials

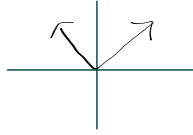absolute value

Function Familiarity
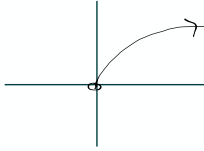
recognition test !!!

└ NOT a real test

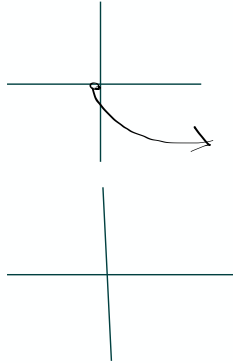I give you the function,

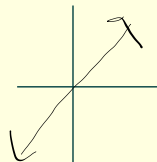you sketch

on scratch paper
is fine

$y = |x|$

$y = \sqrt{x}$

$y = -\sqrt{x}$

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

$y = x^3$

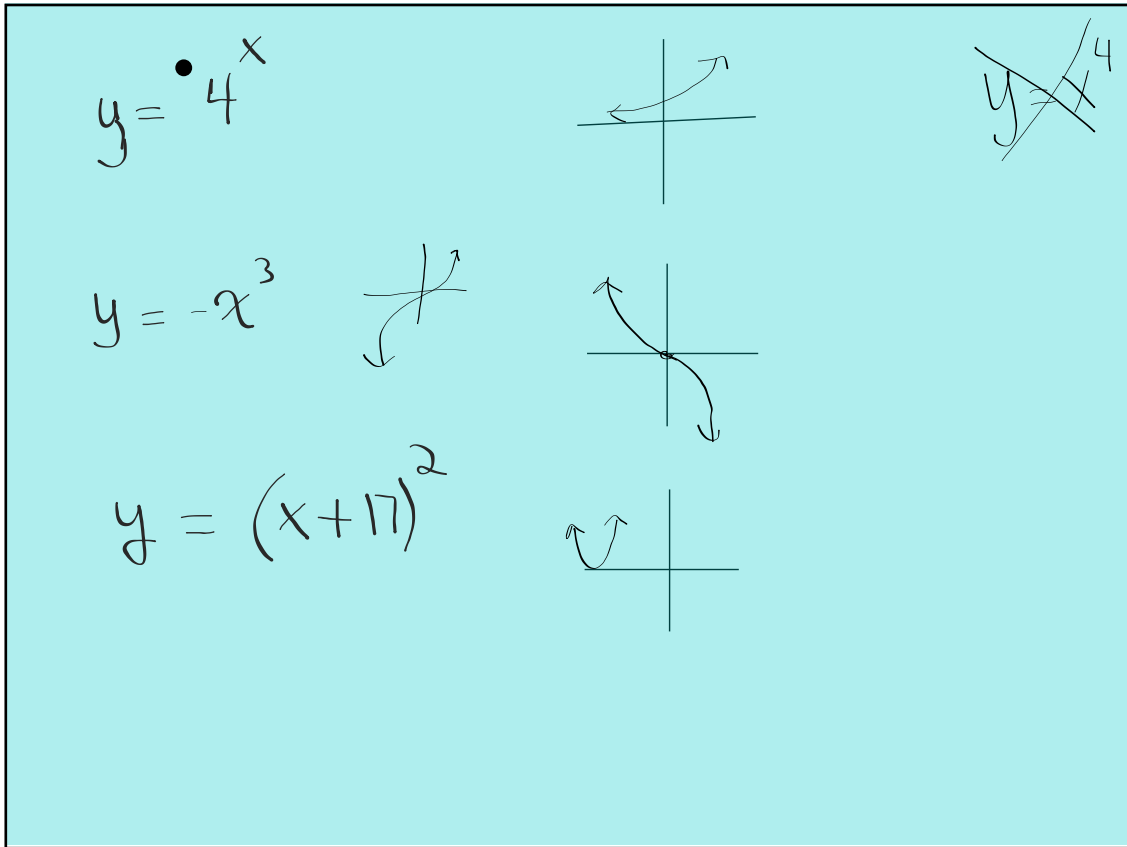$y = x$

$$y = \bullet 4^x$$

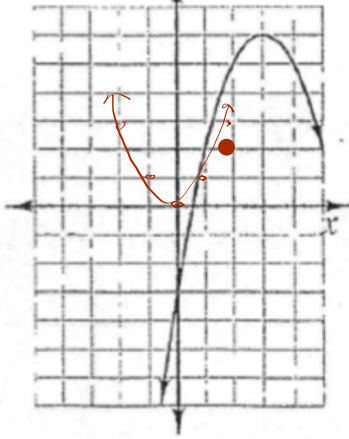$$y = -x^3$$

$$y = (x+17)^2$$

$$y = x^4$$
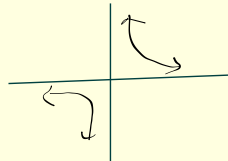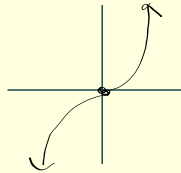
back side of Warm Up

1. Identify the parent function shown on the graph

2. Find the locator point of the graph shown ●

3. ● Write the function that matches the transformation shown.
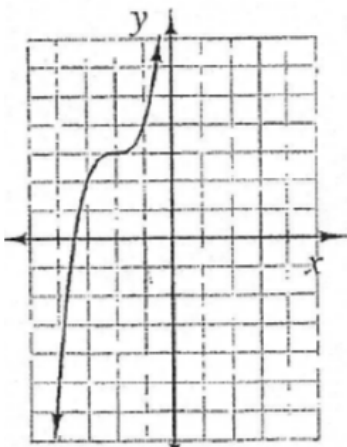
h. $y = -1(x-3)^2 + 6$

Parabola

$$y = x^2 \qquad \bullet$$

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

**The locator point (h, k)
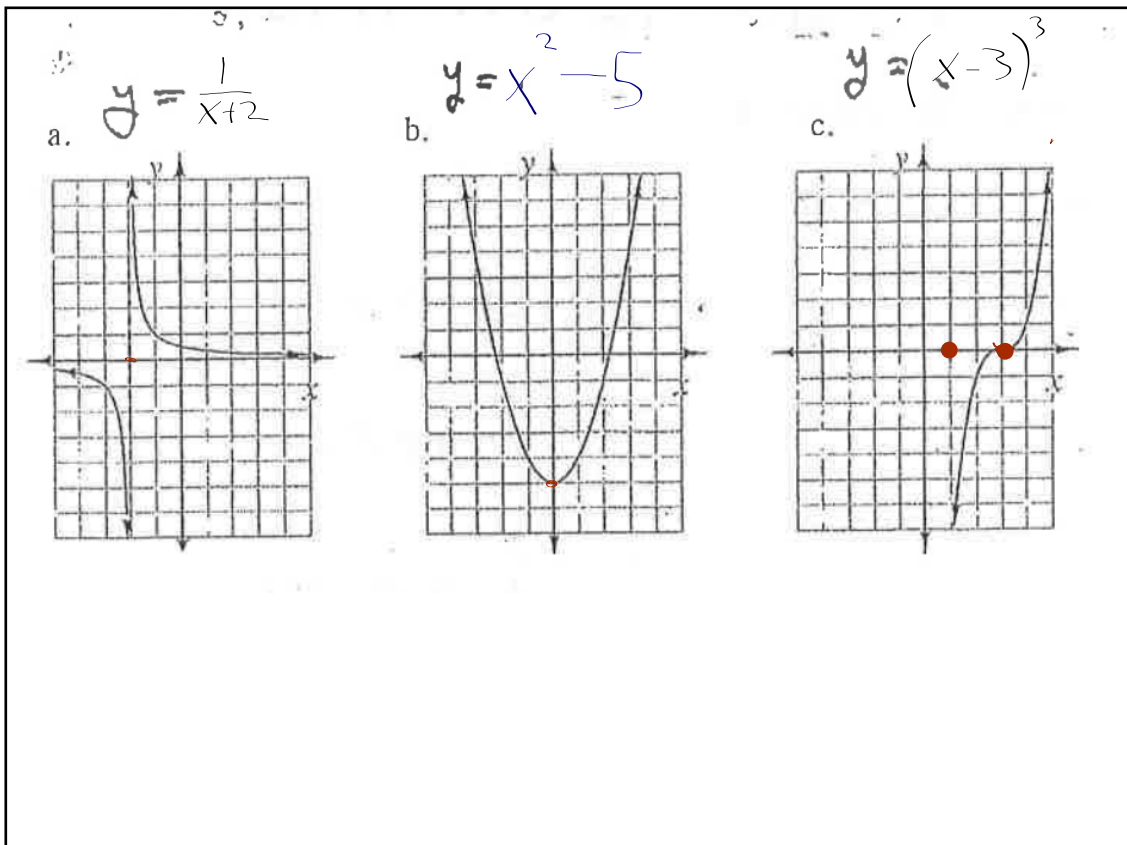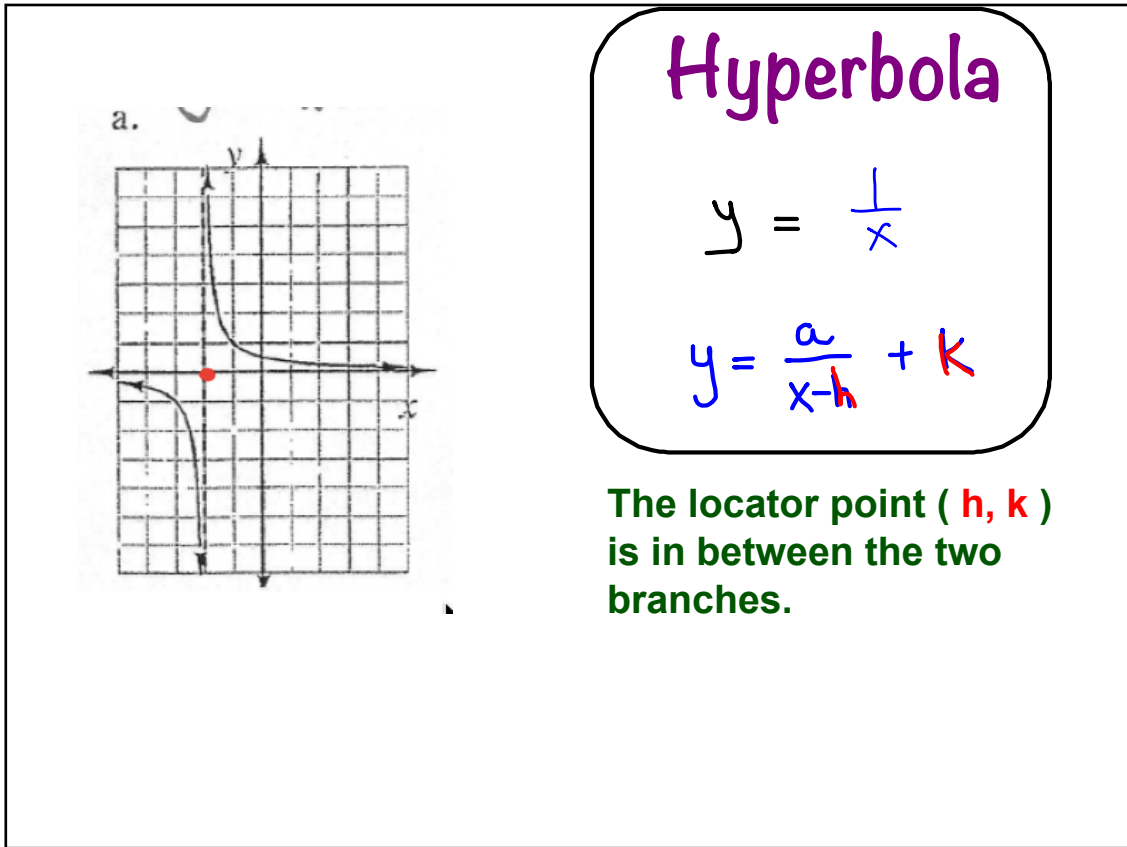is at the vertex of a
parabola**

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f.

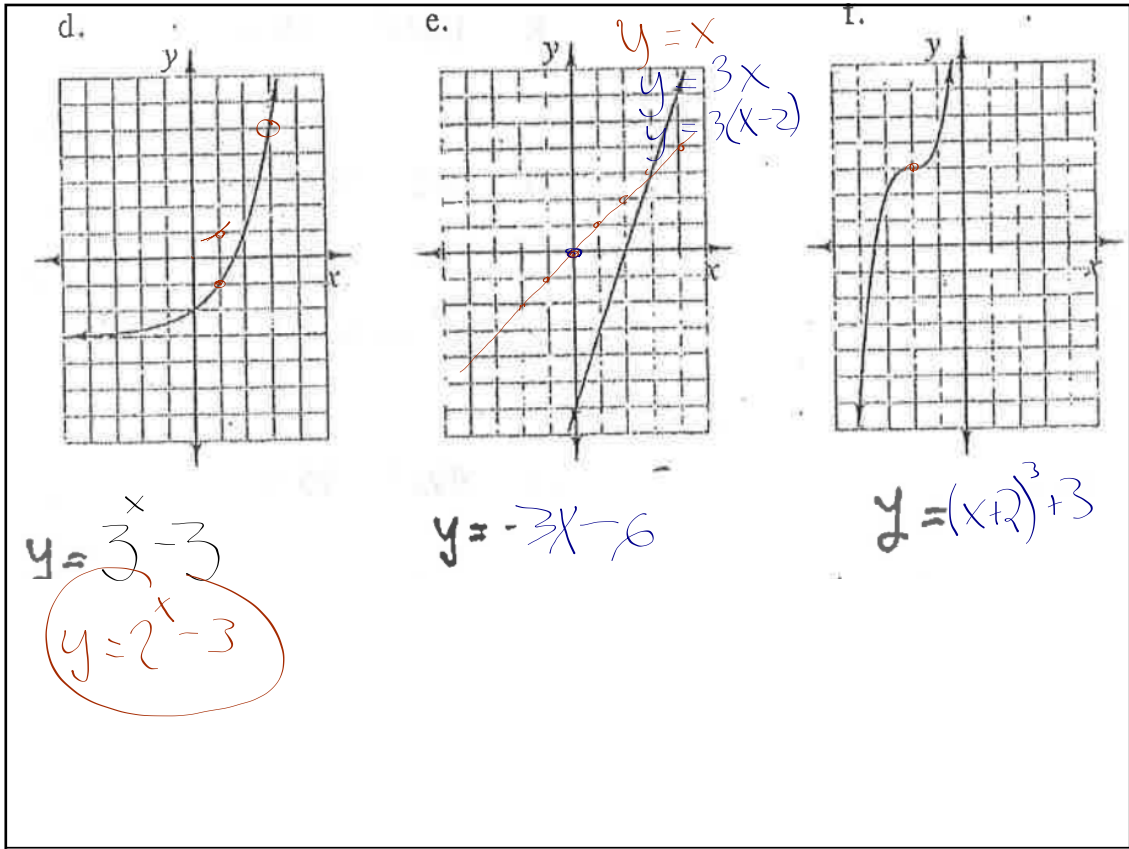# Cubic

$$y = x^3$$

$$y = a(x-h)^3 + k$$

**The locator point (h, k)
is at the inflection point.**

a.

Hyperbola

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

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

**The locator point (h, k)
is in between the two
branches.**

a. $y = \frac{1}{x+2}$

b. $y = x^2 - 5$

c. $y = (x-3)^3$

d.

e.

$y = x$

$y = 3x$

$y = 3(x-2)$

f.

$y = \overset{x}{3} - 3$

$y = 2^{x} - 3$

$y = -3x - 6$

$y = (x+2)^{3} + 3$

$y = (x+3)^{2} - 6$

$y = -$

$y = (x+3)^{3} - 2$

g.

h.

i.
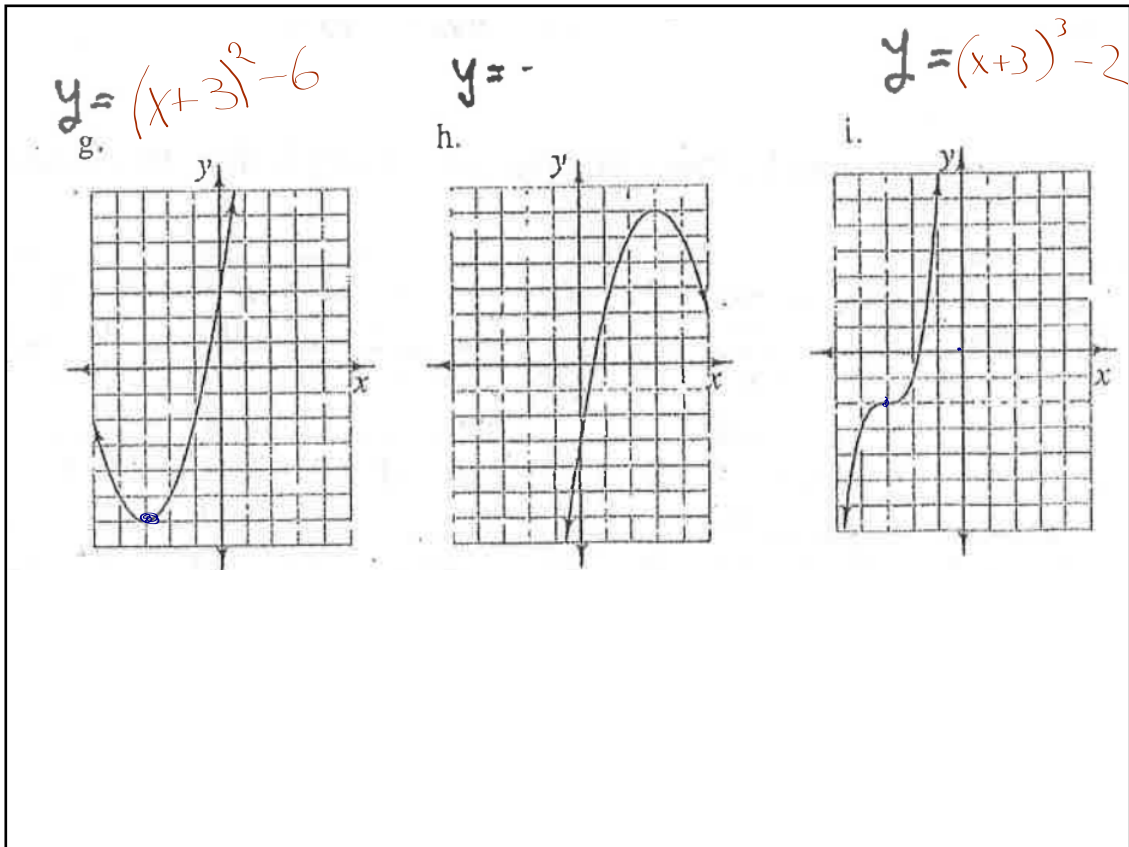
BB

2 - **107-109, 110a, 111, 113, 119**

The Chapter 2 test is Thursday