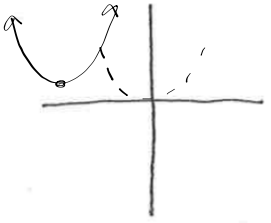
HW tally

Then Pick up and do the Warm Up (both sides)

LCQ (no calculator) later today

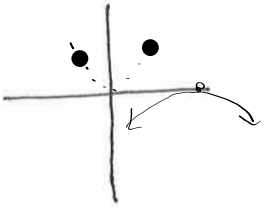
Without a GDC sketch the following parabolas. Then label the vertex. $y=x^2$ is already shown.

$y = (x+3)^2 + 1$



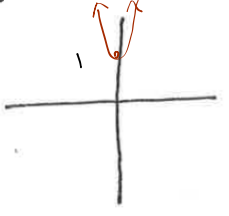
Vertex $(-3, 1)$

$y = -\frac{1}{2}(x-7)^2$



Vertex $(7, 0)$

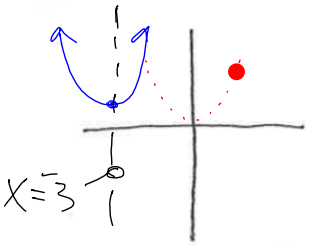
$y = 3x^2 + 2$



Vertex $(0, 2)$

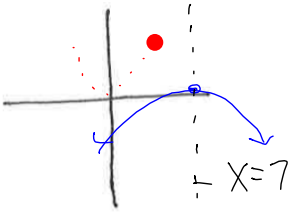
1. Without a GDC sketch the following parabolas. Then label the vertex. $y=x^2$ is already shown.

$y = (x+3)^2 + 1$



Vertex $(-3, 1)$

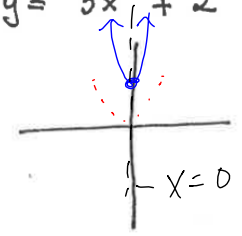
$y = -\frac{1}{2}(x-7)^2$



Vertex $(7, 0)$

$3(x-0)^2+2$

$y = 3x^2 + 2$



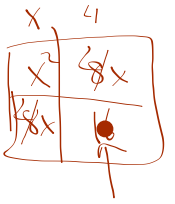
Vertex $(0, 2)$

$y = x^2$

2. Go back to #1 and, with a dashed line, draw the line of symmetry and label with its equation.

3. Convert the following to graphing form

$y = x^2 + 8x + 6$ (+16 to both sides)



$y + 16 = (x+4)^2 + 6$ (−16 to both sides)

$y = (x+4)^2 - 10$

3. Convert the following to graphing form

$y = x^2 + 8x + 6$

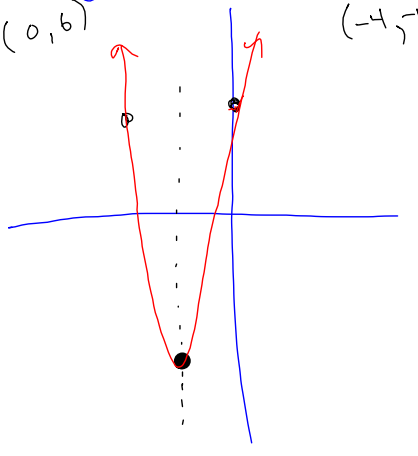
$y + 16 = \begin{array}{|c|c|} \hline x^2 & 4x \\ \hline 4x & 16 \\ \hline \end{array} + 6$ (x: x, 4; y: x, 4)

$y + 16 = (x+4)^2 + 6$ (−16 to both sides)

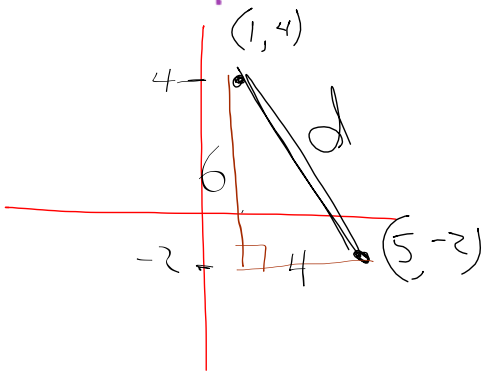
$y = (x+4)^2 - 10$

Vertex $(-4, -10)$

$(0, 6)$



(4) Find the distance between the two points (5, -2) and (1, 4)



$d^2 = (\quad)^2 + (\quad)^2$

$\sqrt{d^2} = \sqrt{6^2 + 4^2}$

$d = \sqrt{36 + 16}$

$d = \sqrt{52}$

$4 - -2 \qquad 5 - 1$

Distance / Formula

Distance formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

d = distance

(x_1, y_1) = coordinates of the first point

(x_2, y_2) = coordinates of the second point

(5) $y = (x-3)^2 - 25$ $(3, -25)$

a) Without a GDC find the vertex

b) Without a GDC find the exact x-intercepts (look for a quick method) — set $y=0$

$(x-3)^2 - 25 = 0$

$\sqrt{(x-3)^2} = \sqrt{25}$

$x - 3 = \pm 5$

$x = 3 \pm 5$

$x - 3 = 5$ $\quad +3 \quad +3$ $\quad x = 8$

$x - 3 = -5$ $\quad +3 \quad +3$ $\quad x = -2$

You will check your HW Monday.

↓

unless we have time at the end of the period.

Protocol when checking HW

Keep your HW out so, if I walk around, I can look at it.

If you did not do it, I expect to see a **0** written on your recording sheet before I get to your desk.

Any questions on HW?

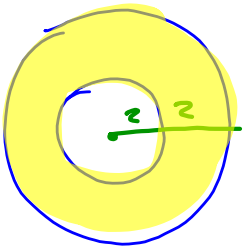
54) $4x^3 + 23x^2 - 2x = 0$

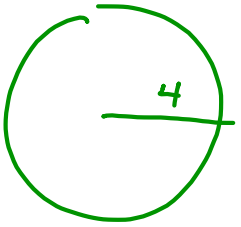
$x(4x^2 + 23x - 2) = 0$

$4x^2 + 23x - 2 = 0$

$a = 4$
$b = 23$
$c = -2$

56a

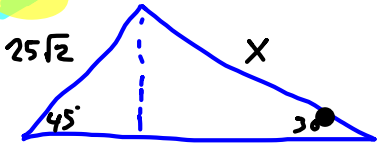




$A = \pi \cdot 4^2$

$A = \pi \cdot 2^2$

c



50 a

50 c

50 d

$y = x^2 + 7x - 2$

convert to graphing form (complete square)

53

$(-2,4)$ $(4,7)$

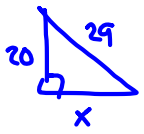
equation

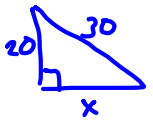
$d =$

4 23 -2

$$X = \frac{-(\ ) \pm \sqrt{(\ )^2 - 4(\ )(\ )}}{2(\ )}$$

55





So, far we have two ways of starting from standard form

$$f(x) = ax^2+bx+c$$

and converting to graphing form

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

Finding the x-intercepts and averaging them

Complete the Square to Convert

Aim Today:

Deal with variations of both methods

NOTES: Convert $y = x^2 + 5x + 2$ using Completing the Square

$y = x^2 + 5x + 2$

$y + 6.25 = x^2 + 2.5x + 2.5x + 6.25 + 2$

	x	2.5
x	x^2	$2.5x$
2.5	$2.5x$	6.25

	x	$5/2$
x	x^2	$\frac{5}{2}x$
$5/2$	$\frac{5}{2}x$	$\frac{25}{4}$

$\frac{5}{2} \cdot \frac{5}{2}$

$y + 6.25 = (x+2.5)^2 + 2$

$y = (x+2.5)^2 - 4.25$

How does one complete the square for $y + \frac{b^2}{4} = x^2 + bx + \frac{b^2}{4} + 20$

$y + \frac{b^2}{4} = \left(x + \frac{b}{2}\right)^2 + 20$

	x	$\frac{b}{2}$
x	x^2	$\frac{b}{2}x$
$\frac{b}{2}$	$\frac{b}{2}x$	$\frac{b^2}{4}$

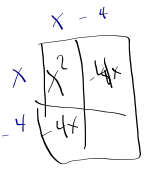
$y = \left(x + \frac{b}{2}\right)^2 + 20 - \frac{b^2}{4}$

$\frac{b}{2} \cdot x \cdot \frac{b}{2} \cdot x = \frac{b^2}{4}$

Complete the Square when $a \neq 1$

$$\frac{y}{2} = \frac{2x^2}{2} - \frac{16x}{2} + \frac{5}{2}$$

$$\frac{y}{2} + 16 = x^2 - 8x + 16 + \frac{5}{2}$$



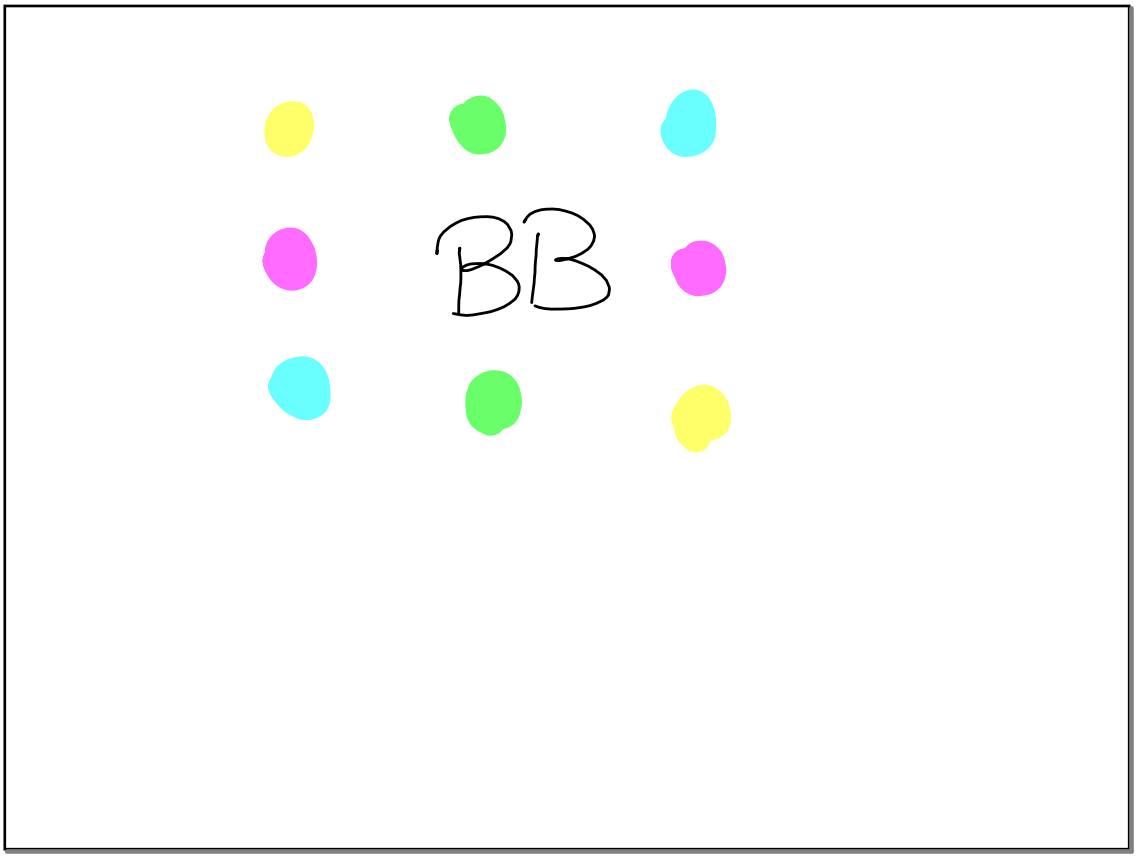
$$\frac{y}{2} + 16 = (x-4)^2 + \frac{5}{2}$$

$$y + 32 = 2(x-4)^2 + 5$$
$$-32 \qquad\qquad -32$$

$$y = 2(x-4)^2 - 27$$

$(4, -27)$

$$y = 2x^2 - 16x + 5$$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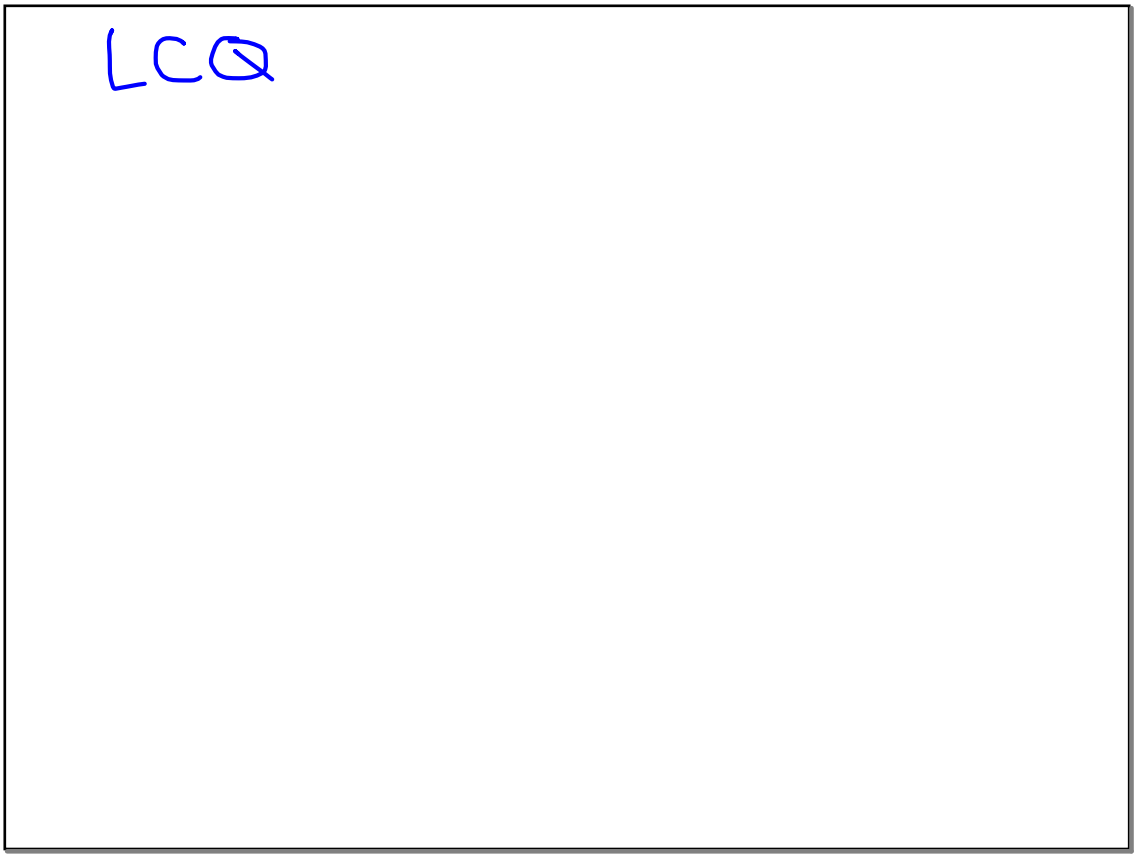
LCQ

After you turn in your LCQ, check your HW solutions and then return the solutions.

Assignment

2-... 50bd , 59-63

record on the blue recording sheet

On Monday you will turn in the yellow recording sheet

9 assignments

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