

Turn-in the Take Home
LCQ in your basket

Pick up the Warm Up after
marking the HW Tally

have your graphing calculator out

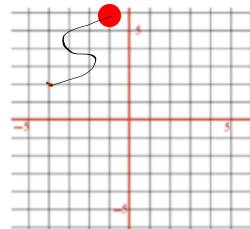
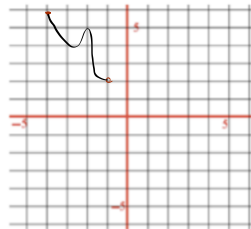
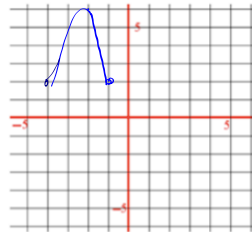
Come up right now to borrow one if needed.

(I still have the class set for 2 more days)

Warm Up

1. On the grid, sketch a function that meets the given requirements. [there are many answers]

domain: $-4 \leq x \leq -1$
range: $2 \leq y \leq 6$



2. What is the biggest difference of the format of the answers between Question A and Question B? *[you don't need to do any work. Just answer the question]*

A. Solve $14x^2 + 3x - 2 = 0$

$x =$ $x =$

B. Factor $14x^2 + 3x - 2$

()

~~$x =$~~ ~~$x =$~~

There is nothing to solve
in question B 

3. Factor $4n - 20$

$4(n-5)$

4. Factor $30n^2 - 3n$ ~~EB~~

$3n(10n-1)$

5. Factor $30n^4 + 60n^3$

$30n^3(n+2)$

$30n^2(n^2+2n)$

\downarrow
 $30n^3(n+2)$

partially
factored \rightarrow

4. If you can remember, write down the formula that can solve any quadratic equation.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$2x^2 + 5x - 6 = 0$$

This formula has a name. It is called:

Examples of equations it can solve:

$$x^2 + 7x - 8 = 0$$

$$5.2x^2 + 7.7x - 8 = 0$$

$$a = 5.2$$

$$b = 7.7$$

$$c = -8$$

$$0 = -4n^2 + 13n + 80$$

$$a = -4$$

$$b = 13$$

$$c = 80$$

$$8 + 2t^2 + 7t = 0$$

$$a = 2$$

$$b = 7$$

$$c = 8$$

HW is important but, so are Warm Ups

do not work on "finishing" your homework during class when you should be working on the Warm Up.

Reminder: Once class starts, you can only add to your HW with a pen of a.....

HW Questionsmod
—137e
→

$$137e) \quad x = (y-5)^2$$

$$\sqrt{\quad} \quad \sqrt{\quad}$$
$$(y-5)^2 = x$$

$$y-5 = \pm\sqrt{x}$$

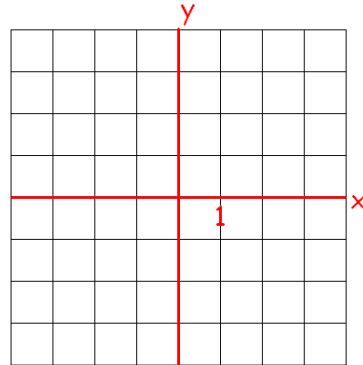
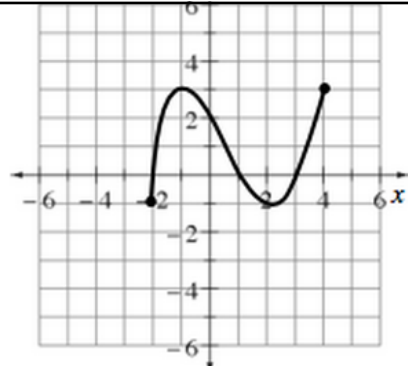
$$y = \pm\sqrt{x} + 5$$

$$\text{or } y = 5 \pm\sqrt{x}$$

34

34. Examine $g(x)$ graphed at right. [Homework Help](#)

- Which x -values have points on the graph? That is, describe the domain of $g(x)$.
- What are the possible outputs for $g(x)$? That is, what is the range?
- Ricky thinks the range of $g(x)$ is: $-1, 0, 1, 2,$ and 3 . Is he correct? Why or why not?
- Draw a graph for another function with the same domain and range as $g(x)$.



35a $f(x) = 3x^2 - 5$ $g(x) = \sqrt{x-5} + 2$

a) $f(5) = 3(5)^2 - 5 = 70$

b) $g(5) =$

35ef) $f(x) = 3x^2 - 5$ $g(x) = \sqrt{x-5} + 2$

② $f(x) + g(x)$

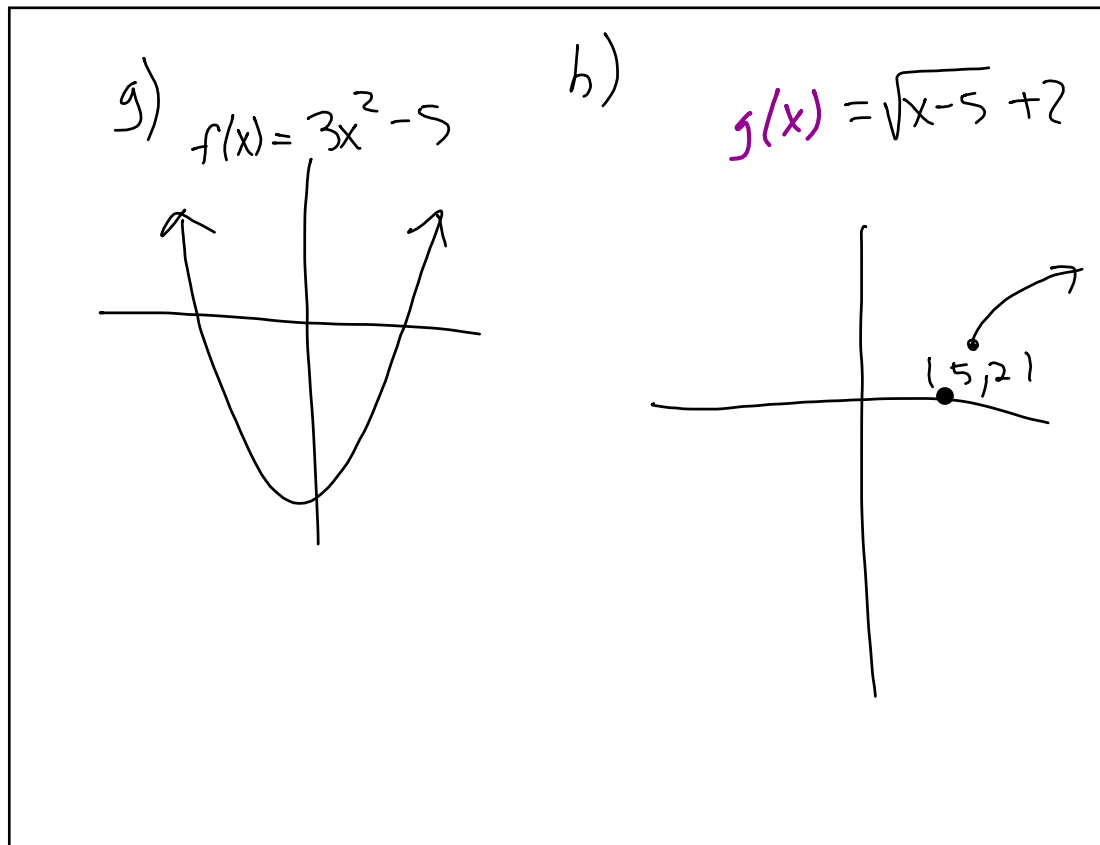
$$3x^2 - 5 + \sqrt{x-5} + 2$$

$$3x^2 + \sqrt{x-5} - 3$$

⊖ $g(x) - f(x)$

$$(\sqrt{x-5} + 2) - (3x^2 - 5)$$

$$\sqrt{x-5} + 2 - 3x^2 + 5$$

$$-3x^2 + \sqrt{x-5} + 7$$


g) domain

$$-\infty < x < \infty$$

range

$$y \geq -5$$

$$-5 \leq y < \infty$$

37) (c) $x = y^2$ (d) $x = 2y^2 - 4$

$$y^2 = x$$

$$\sqrt{\quad} \quad \sqrt{\quad}$$

$$y = \pm \sqrt{x}$$

$$(37e) \quad x = (y-5)^2$$

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

$$\sqrt{\quad} \quad \sqrt{\quad}$$

$$y-5 = \pm \sqrt{x}$$

$$+5 \quad +5$$

$$y = 5 \pm \sqrt{x}$$

or

$$\pm \sqrt{x} + 5$$

$$(38) \quad f(x) = 2x - 7$$

$$y = 2x - 7$$

b) Solve $f(x) = 0$

$$0 = 2x - 7$$

$$7 = 2x$$

$$x = \frac{7}{2}$$

(,)

a) $f(0)$

(,)

c) They are both
axis intercepts

x-int (0, -7)

y-int (3.5, 0)

$$\begin{aligned} \textcircled{40a} \quad & 4(x-1) - 2(3x+5) = -3x-1 \\ & 4x-4 - 6x-10 = -3x-1 \\ & -2x - 14 = -3x-1 \\ & \quad \quad \quad +14 \quad \quad \quad +14 \\ & -2x = -3x+13 \\ & \quad \quad \quad +3x \quad \quad \quad +3x \\ & x = 13 \end{aligned}$$

Random HW Check

Occasionally I will ask you to turn-in last night's HW

When that happens

- I'll give it a score that is separate from the recording sheet.
- I'll give it back the next day so you can include it.

Learning Target today:

Find the intersections of two parabolas

(with the help of the Quadratic Formula)

intercept intersection

but first an example
to check our skills

$$14x^2 - 2 = -3x$$

Solve the
using the
Quadratic
Formula

$$14x^2 + 3x - 2 = 0$$

$$a = 14$$

$$b = 3$$

$$c = -2$$

Shell:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-3) \pm \sqrt{(3)^2 - 4(14)(-2)}}{2(14)}$$

$$x = \frac{-3 \pm \sqrt{121}}{28}$$

$$x = \frac{-3 \pm 11}{28} = \begin{cases} \frac{-3+11}{28} = \frac{8}{28} = \frac{2}{7} \\ \frac{-3-11}{28} = \frac{-14}{28} = -\frac{1}{2} \end{cases}$$

$$\begin{matrix} x = \frac{2}{7} \\ x = -\frac{1}{2} \end{matrix}$$

Shell: $X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$X = \frac{-(3) \pm \sqrt{(3)^2 - 4(14)(-2)}}{2(14)}$

$X =$

Shell: $X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$X = \frac{-(3) \pm \sqrt{(3)^2 - 4(14)(-2)}}{2(14)}$

$X = \frac{-3 \pm \sqrt{121}}{28}$

Shell: $X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$X = \frac{-(3) \pm \sqrt{(3)^2 - 4(14)(-2)}}{2(14)}$

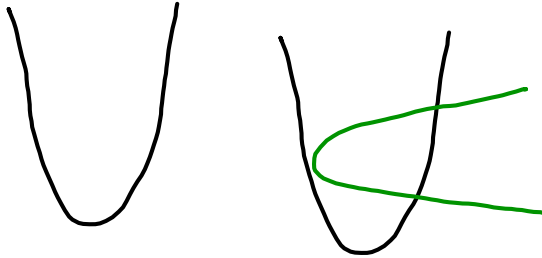
$X = \frac{-3 \pm \sqrt{121}}{28} = \frac{-3 \pm 11}{28} = \begin{cases} \frac{-3+11}{28} = \frac{8}{28} = \frac{2}{7} \\ \frac{-3-11}{28} = \frac{-14}{28} = -\frac{1}{2} \end{cases}$

Intersections vs Intercepts

where functions
cross

x-intercept
y-intercept

how many intersections can two
parabolas have ?

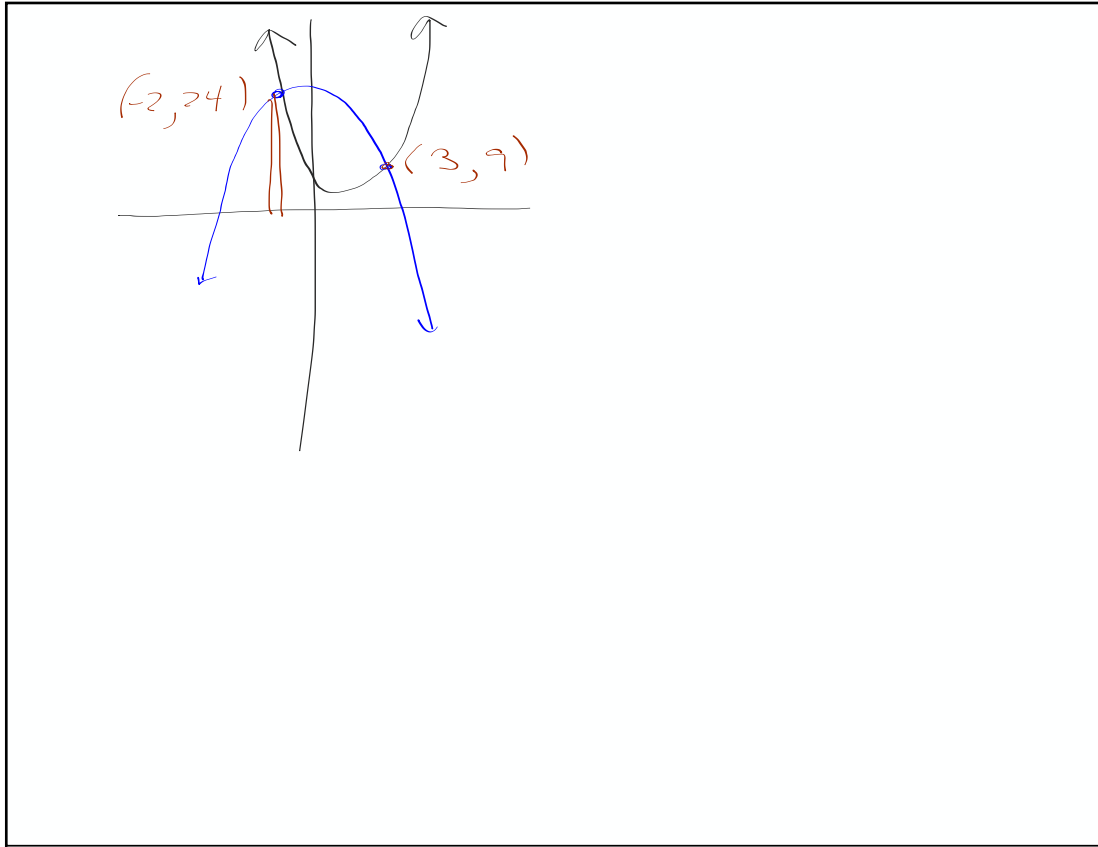


TWO QUADRATIC FUNCTIONS

$$f(x) = 2x^2 - 5x + 6$$

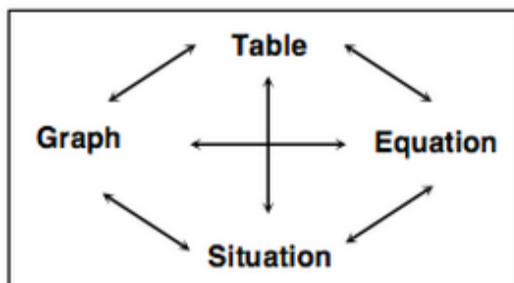
$$g(x) = -2x^2 - x + 30$$

How can we find out
the points of intersection
of these 2 parabolas ?



There are several methods to find intersections of functions.

GRAPHS tables Equations



How can we find it using graphs?

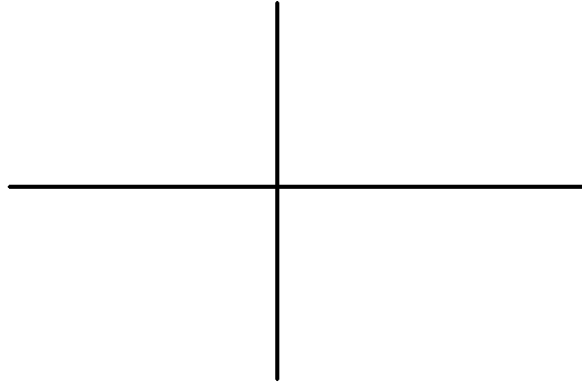
How can we find it in tables?

How can we find it using equations?

Finding Intersections between two functions

$$f(x) = 2x^2 - 5x + 6$$

$$g(x) = -2x^2 - x + 30$$



and with tables

find the intersection Algebraically

$$f(x) = 2x^2 - 5x + 6 \text{ and } g(x) = -2x^2 - x + 30$$

$$2x^2 - 5x + 6 = -2x^2 - x + 30$$

$$4x^2 - 4x - 24 = 0$$

$$\frac{4(x^2 - x - 6)}{4} = \frac{0}{4}$$

$$x^2 - x - 6 = 0$$

$$0 = -4x^2 + 4x + 24$$

$$a = -4$$

$$b = 4$$

$$c = 24$$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(4)(24)}}{2(4)}$$

$$x = \frac{4 \pm \sqrt{400}}{8} = \frac{4 \pm 20}{8} = \begin{cases} \frac{4+20}{8} = \frac{24}{8} = 3 \\ \frac{4-20}{8} = \frac{-16}{8} = -2 \end{cases}$$

$$\begin{array}{cc} (3, 9) & (-2, 24) \\ \uparrow & \uparrow \\ f(3) & f(-2) \end{array}$$

$$X = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(4)(-24)}}{2(4)} = \frac{4 \pm \sqrt{400}}{8} = \frac{4 \pm 20}{8}$$

$$X = \begin{cases} \frac{4+20}{8} = \frac{24}{8} = 3 & (3, 9) \\ \frac{4-20}{8} = \frac{-16}{8} = -2 & (-2, 24) \end{cases}$$

BB

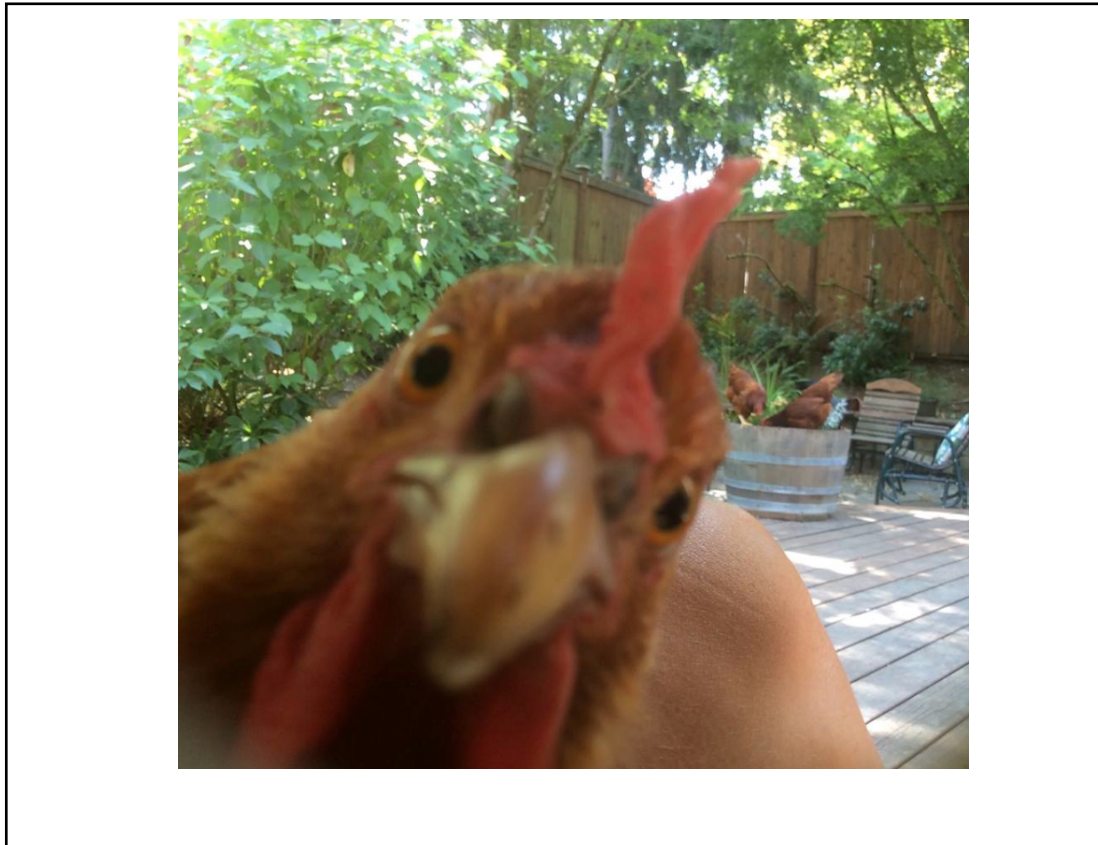
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December 09, 2019





Dog
Chicken



LCQ

Open Notes and Calculator is the norm for LCQs

This LCQ will check some follow up from a few HW problems

front
LCQ
Learning Check Quiz

10%
drop lowest $\frac{1}{3}$

Back
side
Non-graded
Pre-check
for a chapter 2
skill

get some free
points on the
LCQ if
you do your best

Assignment

Do you have a spiral notebook for notes ?

separate folders for handouts ?

pens of a different color?

1 46, 47bc, 48b, 49-52