Slide 1

Warm Up

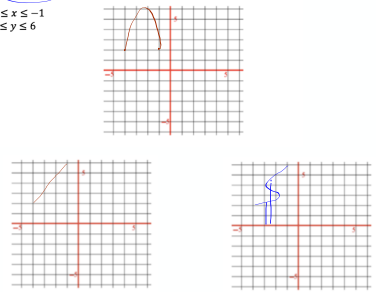**Pick up the Warm Up after marking the HW Tally**

have your graphing calculator out

Come up right now to borrow one if needed.

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

Your LCQ's will be returned during the Warm Up

Slide 2

Warm Up

1. On the grid, sketch a function that meets the given requirements. *(there are many answers)*

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

Slide 3

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_ $14x^2 + 3x - 2 = 0$ B. _Factor_ $14x^2 + 3x - 2$

   $x =$ $x =$ $(\quad x \quad)(\quad x \quad)$

   There is nothing to solve in question B

Slide 4

3. Factor $4n - 20$ 4. Factor $30n^2 - 3n$ 5. Factor $30n^4 + 60n^3$

   $4(n-5)$

   $3n(10n-1)$

   $3n^2(10n^2 + 20n)$

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

   $30n^3(n + 2)$

Slide 5

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

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

This formula has a name. It is called: **Quadratic Formula**

Examples of equations it can solve:

$5.2x^2 + 7.7x - 8 = 0$
$x^2 + 7x - 8 = 0$ $0 = -4n^2 + 13n + 80$ $8 + 2t^2 + 7t = 0$

$a = 5.2$ $a = -4$ $a = 2$
$b = 7.7$ $b = 13$ $b = 7$
$c = -8$ $c = 80$ $c = 8$

Slide 6

**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 Questions   mod

137e →

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

$(y-5)^2 = x$

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

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

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

Mid Chapter HW Check

As you check your HW, I will walk around and check your work.

Have out, on your desk, your HW and **ALL** HW you have done up to this point.

You may **NOT** write any additional scores or information on your recording sheet at this point.

34

-34. Examine $g(x)$ graphed at right.   Homework Help ✎

a. Which x-values have points on the graph? That is, describe the domain of $g(x)$.

b. What are the possible outputs for $g(x)$? That is, what is the range?

c. Ricky thinks the range of $g(x)$ is: $-1, 0, 1, 2,$ and 3. Is he correct? Why or why not?

d. 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 $f(x) = 3x^2 - 5$ $g(x) = \sqrt{x-5} + 2$
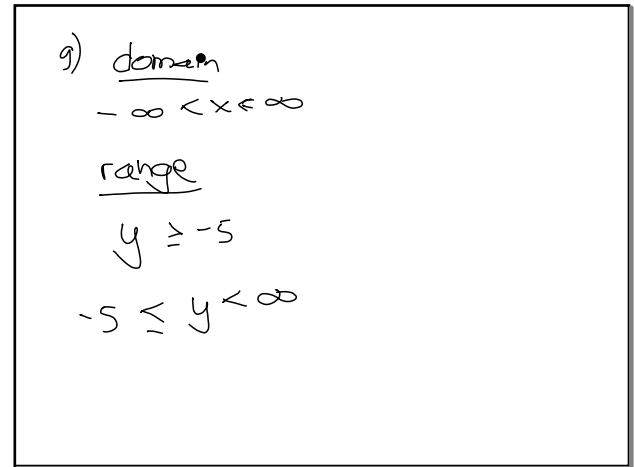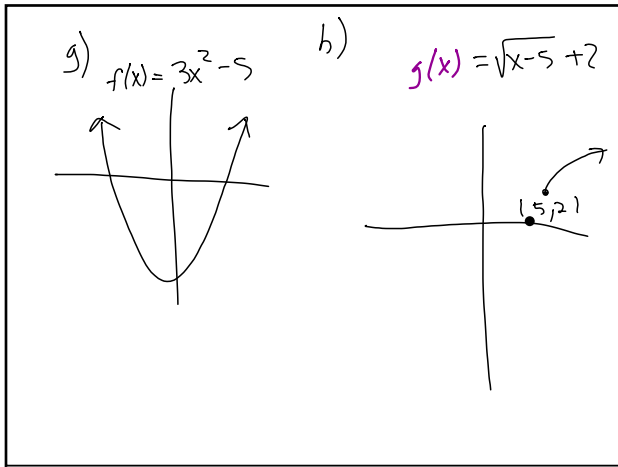
ⓔ $f(x) + g(x)$

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

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

ⓕ $g(x) - f(x)$

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

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

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

g) $f(x) = 3x^2 - 5$

h) $g(x) = \sqrt{x-5} + 2$

$(5, 2)$

g) <u>domain</u>

$-\infty < x < \infty$

<u>range</u>

$y \geq -5$

$-5 \leq y < \infty$

$\boxed{37}$ © $x = y^2$ (d) $x = 2y^2 - 4$

$y^2 = x$

$y = \pm\sqrt{x}$

$\boxed{37\,e}$ $x = (y-5)^2$

$(y-5)^2 = x$

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

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

$\boxed{38}$ $f(x) = 2x - 7$
$y = 2x - 7$

b) Solve $f(x) = 0$
$0 = 2x - 7$
$7 = 2x$
$x = \frac{7}{2}$ $(\quad,\quad)$

a) $f(0)$

$(\quad,\quad)$

c) They are both axis intercepts
x-int $(0, -7)$
y-int $(3.5, 0)$

$\boxed{40\,a}$ $4(x-1) - 2(3x+5) = -3x - 1$

$4x - 4 - 6x - 10 = -3x - 1$

$-2x - 14 = -3x - 1$
$+14 \quad\quad\quad +14$

$-2x = -3x + 13$
$+3x \quad\quad +3x$

$x = 13$

Learning Target today:

Find the intersections of two parabolas

(with the help of the Quadratic Formula)

intercept vs intersection

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but first an example
to check our skills

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

Solve using the Quadratic Formula

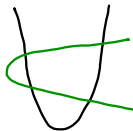$$14x^2 + 3x - 2 = 0$$

$a = 14$
$b = 3$
$c = -2$

$$x =$$

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

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

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

$$x = \dfrac{-3 + 11}{28} = \dfrac{8}{28} = \dfrac{2}{7}$$

$$x = \dfrac{-3 - 11}{28} = \dfrac{-14}{28} = \dfrac{-1}{2}$$
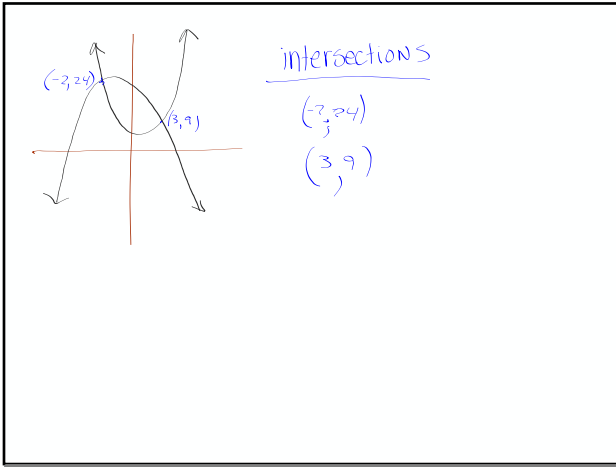
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how many intersections can two parabolas have ?

TWO Quaradatic 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 ?

Panel 1:

intersections

$(-2, 24)$

$(3, 9)$

$(-2, 24)$

$(3, 9)$

Panel 2:

There are several methods to find intersections of functions.

GRAPHS   tables   Equations

	Table	
Graph	↔	Equation
	Situation	

How can we find it using graphs?

How can we find it in tables?

How can we find it using equations?

Panel 3:

Intersections   vs   Intercepts

Panel 4:

Finding Intersections between two functions

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

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

Panel 5:

and with tables

Panel 6:

Solve Algebraically

$2n + 2n$
$2x^2 + 2x^2$

$f(x) = 2x^2 - 5x + 6$ $g(x) = -2x^2 - x + 30$

y   y

$-2x^2 - x + 30 = 2x^2 - 5x + 6$ $2x + 1$ $x - 7$
$+2x^2$ -30 -30
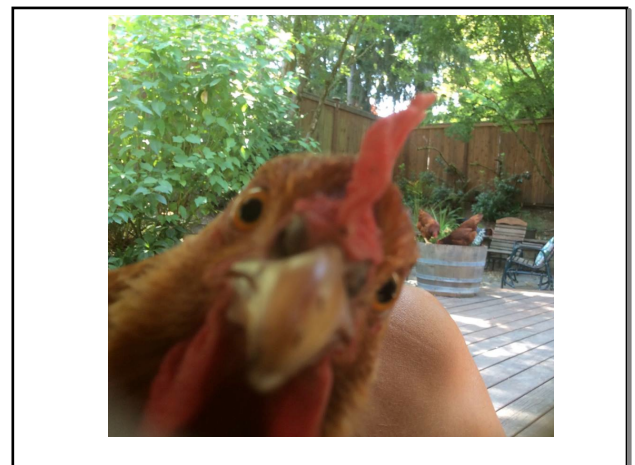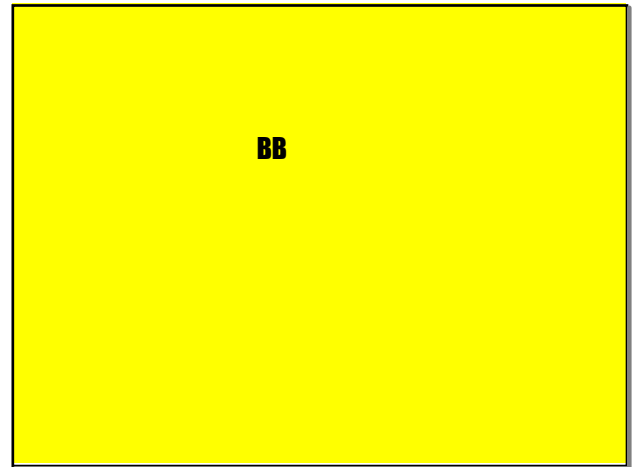 $+2x^2$

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

$a = 4 \quad b = -4 \quad c = -24$

$x = \dfrac{4 \pm \sqrt{400}}{8} = \dfrac{4 \pm 20}{8}$

$x = \dfrac{4 - 20}{8} = \dfrac{-16}{8} = -2$

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

$$X = \frac{4 \pm \sqrt{400}}{8} = \frac{4 \pm 20}{8}$$

$$\frac{4+20}{8} = \frac{24}{8} = 3$$

$$\frac{4-20}{8} = \frac{-16}{8} = -2$$

$(-2, 24)$ and $(3, 9)$

BB

Dog

Chicken

LCQ

Open Notes and Calculator is the norm for LCQs

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

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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

<mark>Assignment</mark>

Do you have a sprial notebook <u>for notes</u> ?

separate folders for handouts ?

pens of a different color?

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

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