

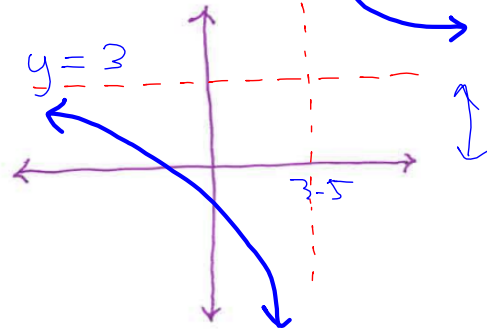


- ① Use the solutions to correct HW 
- ② Then use the HW Help tally as needed.
- ③ I'll pass out the Warm Up 

Check work from HW  
(Any questions?)

① Make a sketch of the Rational function  
 $f(x) = \frac{6x+7}{2x-7}$  Label the sketch appropriately



② Describe all discontinuities  
 Vertical Asymptote at  $x = 3.5$

$$\begin{aligned} 2x - 7 &= 0 \\ 2x &= 7 \\ x &= 3.5 \end{aligned}$$

Domain

$$-\infty < x < \infty, x \neq 3.5$$

Range

$$-\infty < y < \infty, y \neq 3$$

You should be able to write the domain and range of  $f(x)$

$$\frac{\overset{\infty}{\downarrow} 6x + 7}{2x - 7}$$

$$\frac{6x}{2x} = 3$$

③ Create an equation of a circle with radius 12 whose center is  $(-100, -90)$

$$(x + 100)^2 + (y + 90)^2 = 144$$

④  $x^2 - 8y - 12x + y^2 = 12$

$$x^2 - 12x + y^2 - 8y = 12$$

$$x^2 - 12x + 36 + y^2 - 8y + 16 = 12 + 36 + 16$$

$$(x - 6)^2 + (y - 4)^2 = 64$$

center  $(6, 4)$

radius 8

$$\left(\frac{-12}{2}\right)^2$$
$$= 36$$

$$\left(\frac{-8}{2}\right)^2$$
$$16$$

5 a. How do I know if an equation is quadratic?

Circle any from

$$10 = 3x - 7$$

$$\rightarrow 6 = x^2 - 7x + 2$$

$$\rightarrow 5x^2 - 8x + 100 = 7$$

$$3x^2 - x + 1$$

$$\rightarrow (x-2)^2 = 17$$

$$\rightarrow x^2 - 1 = 0$$

5b) what are the two ways  
to solve a quadratic  
equation?

1) Factoring  $\rightarrow$  ZPP

2) Quadratic Formula

huh?  $\rightarrow$  3) Completing the Square

$$\textcircled{6} \rightarrow \frac{4a-4b}{(a+1)^2} \div \frac{6b-6a}{a^2-1} \leftarrow$$

$$\frac{\cancel{2} \cdot \cancel{4}(a-b)}{(a+1)^{\cancel{2} \cdot 1}} \cdot \frac{(\cancel{a}+1)(a-1)}{\cancel{6}(b-a) - \cancel{6}(a-b)} = \frac{2(a-1)}{3(a+1)}$$

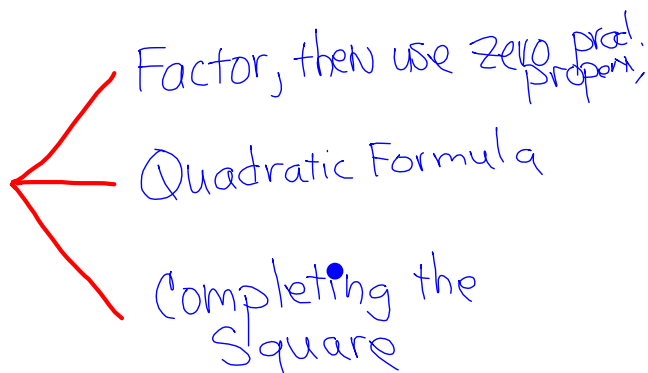
In your  
notes



NOTES

**A third method to solve a quadratic equation**

Methods to solve a  
quadratic equation:



Today's  
AIM

Use completing the Square to solve a quadratic equation ✓

Simplify complex  
Algebraic fractions

Something we've never done before:

Solve the equation  $x^2 - 4x - 5 = 0$

Using the idea of completing the square concept.

$$x^2 - 4x - 5 = 0$$

+5      +5

Rewrite equation  
focusing on first  
two terms

$$x^2 - 4x + 4 = 5 + 4$$

$$\left(\frac{-4}{2}\right)^2 = 4$$

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

$$x-2 = \pm 3$$

$$x-2 = 3$$

•

$$x = 5$$

$$x-2 = -3$$

$$x = -1$$

Another:

$$x^2 = 10 - 12x$$

$$x^2 + 12x - 10 = 0$$

$$x^2 + 12x + 36 = 10 + 36$$

$$(x+6)^2 = 46$$

$$x+6 = \pm \sqrt{46}$$

$$x+6 = \sqrt{46}$$

$$x+6 = -\sqrt{46}$$

$$x = -6 + \sqrt{46}$$

$$x = -6 - \sqrt{46}$$



# Test Information

for: Ch. 3 Test

on: Tues., Nov 7

See your  
LCQ

$$\cancel{(x)} \frac{5}{x} = x(x) + (4)x$$

$$5 = x^2 + 4x$$

$$0 = x^2 + 4x - 5$$

BB

Today's  
AIM

Use completing the square to  
solve a quadratic equation ✓

Going deeper with  
Rational Expressions

Notes →

Temptation

$$\frac{1 \cancel{30x} (1)}{1 \cancel{2x}} - \frac{(2) \cancel{6} x}{1 \cancel{5x}} = \frac{(1) \cancel{10} x}{\cancel{2} 1}$$

$$15 - 12 = 10x$$

$$3 = 10x$$

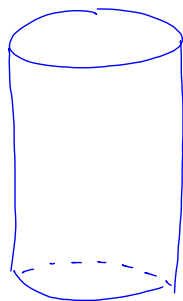
$$x = \frac{3}{10}$$

$$\frac{(5) 1}{3 (2x)} - \frac{2(2)}{5x(2)} = \frac{1}{3}$$

$$\frac{5 - 4}{10x} = \frac{1}{3}$$

$$\frac{1}{10x} = \frac{1}{3}$$

$$3 = 10x$$



$$V = \pi r^2 h$$

$$SA = 2\pi r^2 + 2\pi r h$$

Volume to SA ratio

$$\frac{V}{SA} = \frac{\pi r^2 h}{2\pi r^2 + 2\pi r h}$$

Simplify  
it

Partner  
LCQ

Assignment **3** .... 113, 116 to 118  
..... do 119 with your GDC