

MAT 121-G11

COLLEGE ALGEBRA

Go to website. Read Syllabus.

Final Test: WEDNESDAY, DECEMBER 4TH, 7:10 A.M. – 9:00 A.M. THIS MEANS COMING IN 35 MINUTES EARLIER THAN REGULAR CLASS TIME!!!

Chapter 1 Test Pg 171

BONUS PROBLEM
for C1:

11, page 171

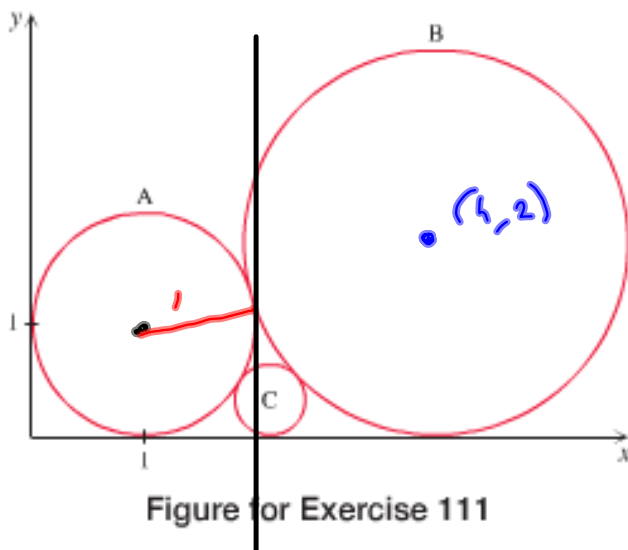


Figure for Exercise 111

$$A: (x-h)^2 + (y-k)^2 = r^2$$

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

B: ?

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

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

$$h < 4$$

Next time help us make sense of the syllabus.

C1 Test

1st Homework Assignment.
Due Friday,

① $3x - 7 = x + 5$
 $-x + 7 = -x + 7$

Need $2x = 12$ **NEED**

$\frac{2x}{2} = \frac{12}{2}$

Need $x = \frac{12}{2} = 6 = x$ **NEED**

Wrong Way

$-2x - 7 < x + 5$
 $-x + 7 = -x + 7$

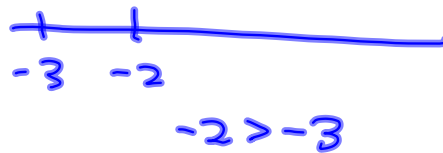
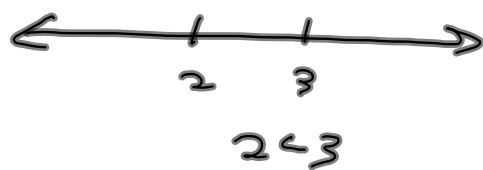
$\frac{-3x < 12}{-3 \quad -3}$ No!

$x > -4$ No!

2 false statements
Double-Ding.

Why so needy?

$-2x - 7 < x + 5$
 $-x + 7 = -x + 7$
 $-3x < 12$ Need
 $\frac{-3x}{-3} > \frac{12}{-3}$
 $x > \frac{12}{-3} = -4$
 $x > -4$ Need.
CORRECT WAY



(2) Fractions >

$$\text{LCD} = 2 \cdot 3 = 6 \quad \frac{1}{2}x - \frac{1}{6} = \frac{1}{3}x$$

$$\frac{x \cdot 3}{2 \cdot 3} - \frac{1}{6} = \frac{x \cdot 2}{3 \cdot 2} \quad *$$

$$\frac{3x}{2 \cdot 3} - \frac{1}{2 \cdot 3} = \frac{2x}{3 \cdot 2}$$

$$\frac{3x - 1}{\text{LCD}} = \frac{2x}{\text{LCD}}$$

$$3x - 1 = 2x$$

$$-2x + 1 = -2x + 1$$

$x = 1$

Standard way:
Clear Fractions by
Multiplying by LCD.

My way:
Again, relates to
inequalities in the
sequel.

$$\frac{x}{3} = \frac{y}{3} \Rightarrow$$

$$x = y$$

$$\frac{x}{3} = \frac{y}{3} \Rightarrow x = y$$

No x-term. Easy.

$$\textcircled{3} \quad \begin{array}{l} 5x^2 - 11 = 0 \\ +11 = +11 \end{array}$$

Need $5x^2 = 11$

$$\frac{5x^2}{5} = \frac{11}{5}$$

Need $x^2 = \frac{11}{5}$

$$|x| = \sqrt{x^2} = \sqrt{\frac{11}{5}}$$

$$\begin{array}{l} |x| = \sqrt{\frac{11}{5}} \\ x = \sqrt{\frac{11}{5}} \text{ OR } x = -\sqrt{\frac{11}{5}} \end{array}$$

$$x = \sqrt{\frac{11}{5}} \text{ No}$$

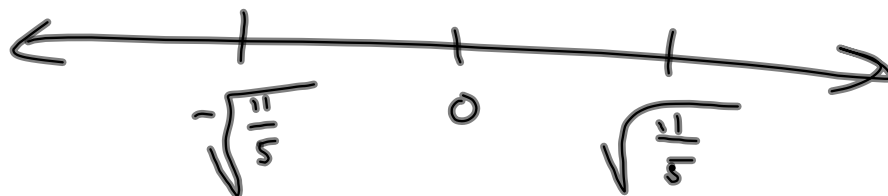
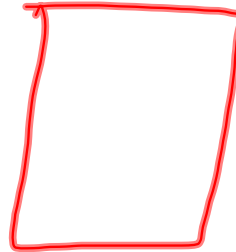
$$x = \pm \sqrt{\frac{11}{5}} \text{ yes}$$

$$\sqrt{5} \sqrt{5}$$

$$\sqrt{9} = 3$$

$$\sqrt{3^2} = 3$$

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



3 ways to solve a quadratic equation.

- ① Factoring
- ② Quadratic Formula
- ③ Complete the Square

$$\textcircled{4} \quad x^2 + 2 = 6x$$

$$\quad \quad \quad -6x = -6x$$

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

Factor: Discriminant = $b^2 - 4ac$

$$ax^2 + bx + c = 0$$

$$a = 1, b = -6, c = 2$$

$$b^2 - 4ac = (-6)^2 - 4(1)(2)$$

$$= 36 - 8$$

$$= 28 = 2 \cdot 2 \cdot 7$$

$$\begin{array}{r} 2 \overline{) 28} \\ \underline{2} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$$\sqrt{2 \cdot 2 \cdot 7} = 2\sqrt{7}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{6 \pm 2\sqrt{7}}{2(1)}$$

$$= 3 \pm 2\sqrt{7} \quad \text{No!!!}$$

$$= \frac{\cancel{2}(3 \pm \sqrt{7})}{\cancel{2}} = \boxed{3 \pm \sqrt{7}}$$

FACT

This means that

$$x^2 - 6x + 2 = (x - (3 + \sqrt{7}))(x - (3 - \sqrt{7}))$$

Same as $(x-5)(x+2) = x^2 - 3x - 10$ with $x=5$ & $x=-2$ being the connection.

FACTOR

$$x^2 - 3x - 10$$

$$b^2 - 4ac = (-3)^2 - 4(1)(-10) = 9 + 40 = 49$$

$$x = \frac{3 \pm 7}{2}$$

$$\begin{array}{l} \sqrt{49} = 7 \\ \frac{10}{2} = 5 \\ \rightarrow -2 \end{array}$$

$$x = 5 \text{ or } x = -2, \text{ so}$$

$$x^2 - 3x - 10 = (x-5)(x-(-2))$$

$$= (x-5)(x+2)$$