

HW Help 

Warm Up

Next Test: Tuesday, Nov. 6<sup>th</sup>① Convert  $f(x) = x^2 + 20x + 550$  to graphing form by completing the square

$$f(x) + 100 = x^2 + 20x + 100 + 550$$

$$\left(\frac{20}{2}\right)^2 = 100$$

$$f(x) + 100 = (x+10)^2 + 550$$



$$f(x) = (x+10)^2 + 450$$

② Write an equation of a circle with a radius of 9 that has a center of  $(7, -2)$ 

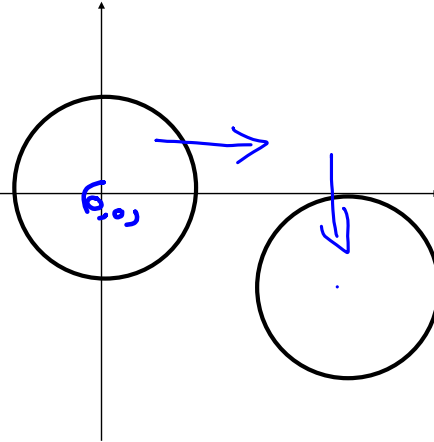
$$(x-7)^2 + (y+2)^2 = 81 \quad \checkmark$$

Write an equation of a circle with a radius of 9, that has a center (7, -2)

$$(x)^2 + (y)^2 = 81$$

$x-7$                    $y+2$

$$(x-7)^2 + (y+2)^2 = 81$$



③ Find the radius and center of the circle

$$x^2 + y^2 - 8x + 10y = -5$$

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

$$x^2 - 8x + 16 + y^2 + 10y + 25 = -5 + 16 + 25$$

$$(x-4)^2 + (y+5)^2 = 36 + 37$$

$$r = 6 \quad r = \sqrt{37}$$

$$(4, -5)$$

④ Graph the circle on your graphing calculator

$$(x+3)^2 + (y-4)^2 = 25$$

$$(y-4)^2 = 25 - (x+3)^2$$

$$y-4 = \pm \sqrt{25 - (x+3)^2}$$

$$y = 4 \pm \sqrt{25 - (x+3)^2}$$

HW  
Questions



3-54 Circle

a) center (0,0)

$$r=6$$

$$x^2 + y^2 = 36$$

b) center (2,-3)

$$r=6$$

$$(x-2)^2 + (y+3)^2 = 36$$

50

$$5x^3y + 35x^2y + 50xy$$

NOT IN SOLUTIONS

FACTOR completely

$$5xy(x^2 + 7x + 10)$$

$$5xy(x+2)(x+5)$$

$$\begin{aligned} \underline{45 a)} \quad & (n+4) + \widehat{n(n+2)} + n = 0 \\ & n+4 + \underline{n^2} + 2n + n = 0 \\ & n^2 + 4n + 4 = 0 \end{aligned}$$

$$b) \quad \frac{4}{x} = x+3$$

46

a)  $(ab)^2$

$$a^2 b^2$$

b)  $3x - 4y = 12$   
 $-3x$                        $-3x$

$$y = \frac{3}{4}x - 3$$

c)  $y = 2(x-1) + 3$

$$y = 2x + 1$$

d)  $(a+b)^2$

$$a^2 + b^2$$

e)  ~~$x^6$~~   
 ~~$x^2$~~   $x^4$

NOT  
equiv.

$$x^3$$

f)  $y = 3(x-5) + 2$

$$y = 2x - 8$$

49 a.  $t(n) = 450,000 (1.03)^n$   
 b.  $t(10) = 450,000 (1.03)^{10} = \$604,732.37$   
 604,762

Profit :  $\begin{array}{r} 604732.37 \\ - 450000.- \\ \hline \$154,762.37 \end{array}$

$$\frac{154762.37}{450000} = .343916 \dots \quad \underline{\underline{34.39\%}}$$

53  $7 \sqrt[4]{x^3}$

46b

$$3x - 4y = 12$$

$$y = \frac{3}{4}x - 3$$

.

$$\begin{aligned}(ab)^2 &= ab \cdot ab \\ &= a \cdot a \cdot b \cdot b \\ &= a^2 b^2\end{aligned}$$



$$\begin{array}{l} \underline{53} \\ c \end{array} \quad \sqrt[8]{17^x} \quad (17^x)^{\frac{1}{8}} = 17^{\frac{x}{8}}$$

$$d \quad 7 \cdot \sqrt[4]{x^3} = 7 \cdot x^{\frac{3}{4}}$$

$$54c) \quad x^2 + y^2 - 8x + 10y + 5 = 0$$

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Tracing Functions  
in the air

$$y = x^2$$

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

$$y = -\frac{1}{2}x + 5$$

$$y = 2x^2 - 4x + 7$$

$$y = \frac{1}{5}x^3 + 7$$

Think:

What does the graph of the parent look like?

$$y = 2(x-1)^2 - 5$$

Objective  
for  
the day:

Combine functions  
and analyze them

+ - × ÷

Some will  
be a new  
type of  
function

Specifically Polynomial  
functions

What do polynomials  
look like?

(any  
real  
#)  $x$  any positive  
integer

$$8x^4$$

$$103x^{59}$$

$$0.5x^7$$

$$\frac{2}{3}x^2$$

## Silent Reading (5 minutes)

Quietly read through the Vocabulary Section on page 135 of your text book.

take notes on your own time later as needed.

$$\left(\begin{array}{c} \text{any} \\ \text{real} \\ \# \end{array}\right) x^{\text{any positive integer}}$$

or

$$\left(\begin{array}{c} \text{any} \\ \text{real} \\ \# \end{array}\right) x^{\text{positive integer}} + \left(\begin{array}{c} \text{any} \\ \text{real} \\ \# \end{array}\right) x^{\text{positive integer}}$$

$$5x^4 + 6x^2$$

$$x^{-2}$$

$$2x+1$$

Need to be in pairs

each pair will investigate  
a different pair of  
functions

- Writen
- GDC

one paper per pair.

front

① { Writer A  
GDC B

---

② { Writer B  
GDC A

back side

③ { Writer A  
GDC B

④ { Writer B  
GDC A

Pair #1

Person A                      Person B                      Period \_\_\_\_\_

our two functions :  $f(x) = x - 2$      $g(x) = 2x + 3$

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① A writes  
B does part c  
on GDC

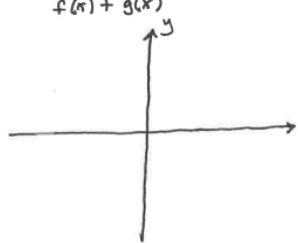
a) Perform the operation shown (simplify if possible)

$$x + 2 + 2x + 3$$

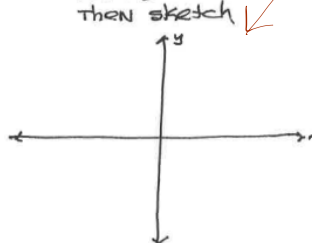
~~177~~

$$y_1 = (x + 2) + (2x + 3)$$

b) Prediction of graph of  $f(x) + g(x)$



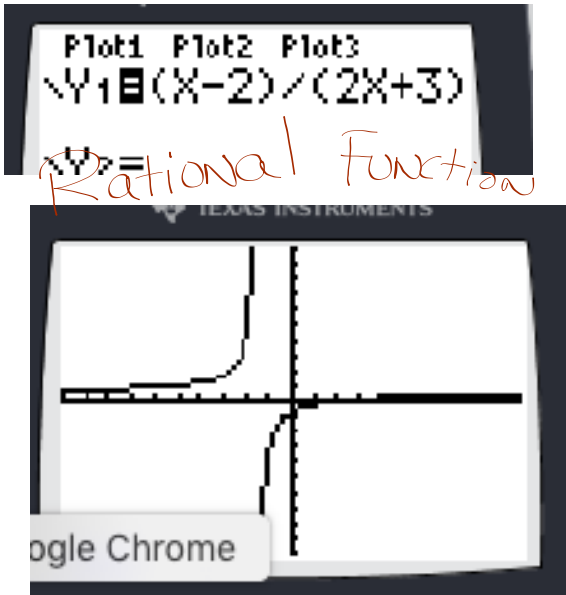
c) Person B graphs  $f(x) + g(x)$  ON GDC then sketch



$f(x) + g(x)$

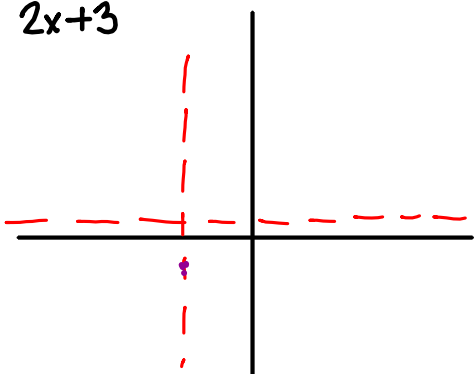
- Be organized when investigating
- You will be presenting portions of your work so be neat.
- Each pair will turn in one investigation
  - names go on top

**PAIR # 1**



Plot1 Plot2 Plot3  
Y1=(X-2)/(2X+3)  
Rational Function

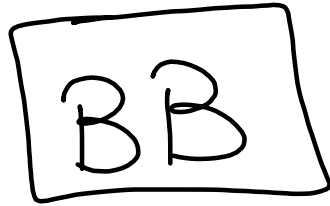
$\frac{X-2}{2x+3}$



domain

$-\infty < x < \infty,$   
 $x \neq -1.5$



A hand-drawn rectangular box containing the letters 'BB' written in a simple, cursive-like font.

- Check your answers by referring to the Checkpoint 3A materials section of the answers.
- If you feel that you need more confidence when solving these types of problems, then review the Checkpoint 3A materials and try the practice problems provided. From this point on, you will be expected to do problems like these correctly and with confidence.

turn in  
your investigation

Assignment

**3** ..... 63 to 69

67 is a Checkpoint problem

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$$\text{Pair A} \quad \begin{aligned} f(x) &= x-2 \\ g(x) &= 2x+3 \end{aligned}$$

$$\text{Pair B} \quad \begin{aligned} f(x) &= x-3 \\ g(x) &= 5x-9 \end{aligned}$$