Warm UP
(in your notes)

HW Questions →

1. Find the center and radius of $x^2+y^2-8x+10y=-5$

2. Then graph the circle $(x+3)^2+(y-4)^2=36$ on your GDC

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

2. graph on your calculator

2) Then graph the circle $(x+3)^2+(y-4)^2=36$ on your GDC

HW Questions

50 →

50 $5x^3y + 35x^2y + 50xy$ NOT IN SOLUTIONS

FACTOR completely $5xy(\quad)$

$5xy(\quad X \quad)$

3-54 Circle

(a) center $(0,0)$ $r = 6$ $x^2 + y^2 = 36$

(b) center $(2,-3)$ $r = 6$ $(x-2)^2 + (y+3)^2 = 36$

45 a) $(n+4) + n(n+2) + n = 0$

$n+4+n^2+2n+n=0$

$n^2+4n+4=0$

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

46 (a) $(ab)^2$ a^2b^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) $\frac{x^6}{x^2}$ x^4 x^1 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

762.

Profit: 604732.37

$-\ 450000.-$

$\$154{,}762.37$

$\frac{154762.37}{450000} = .343916\ldots$ 34.39%

53

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

46b

$3x-4y=12$ $y=\frac{3}{4}x-3$

$$(ab)^2 = ab \cdot ab$$

$$= a \cdot a \cdot b \cdot b$$

$$= a^2b^2$$

53

c $\sqrt[8]{17^x} \quad (17^x)^{\frac{1}{8}} = 17^{\frac{x}{8}}$

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

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

41

Objective for the day

Combine functions and Analyze them

$y = |x|$

$+ \quad - \quad \times \quad \div$

one will be a new type of function

Specifically Polynomial functions

What do polynomials look like?

(any real #) $x^{}$ any positive integer

$3x^{7}$

$47x^{3}$

$.2x^{500}$

$-999x$

$1000000x$

} Monomomials

(any real #) $x^{}$ any positive integer

or

(any real #) $x^{}$ positive integer + (any real #) $x^{}$ positive integer

$5x^{4} + 3x^{23}$

Need to be in pairs

One person in the pair will be an A

The other a B

Each pair will investigate 4 combinations of the same two functions

- one paper per pair
- one calculator per pair
- rotate responsibilities.
  writer ↔ GDC

Pair #1 Person A Person B Period ___

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

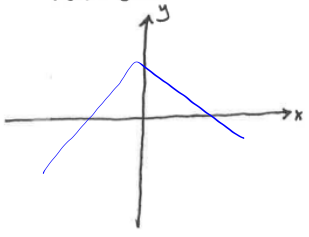
① A writes B does part C on GDC

a) Perform the operation shown (simplify if possible)

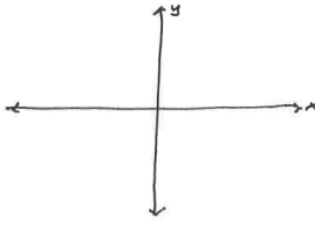
$x-2 + 2x+3$

$f(x) + g(x)$

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



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



careful with ( )

$f(x) = 3x-7$ $g(x) = 10x-1$

$f(x) \cdot g(x)$

$\frac{f(x)}{g(x)} =$

front

back side

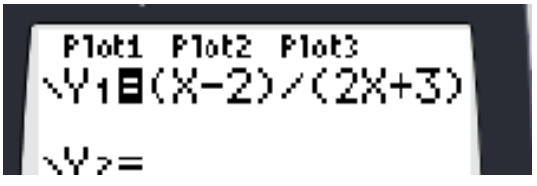
1 { Writer A / GDC B

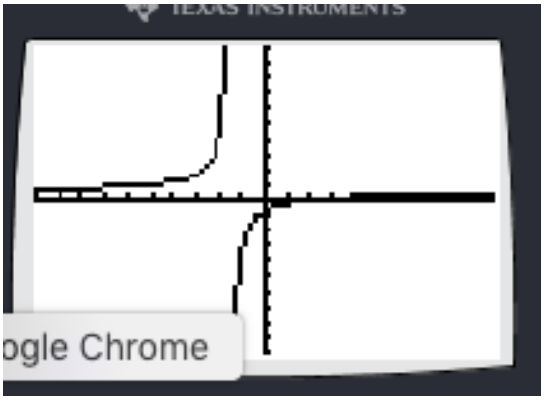
2 { Writer B / GDC A

3 { Writer A / GDC B

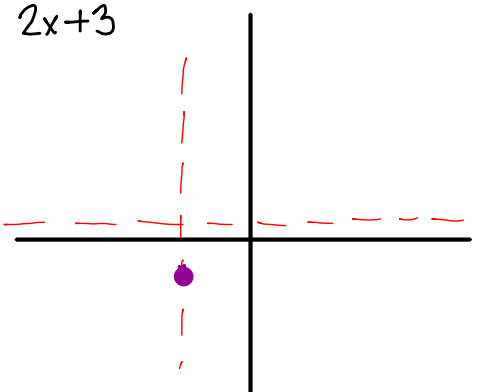
4 { Writer B / GDC A

PAIR #1



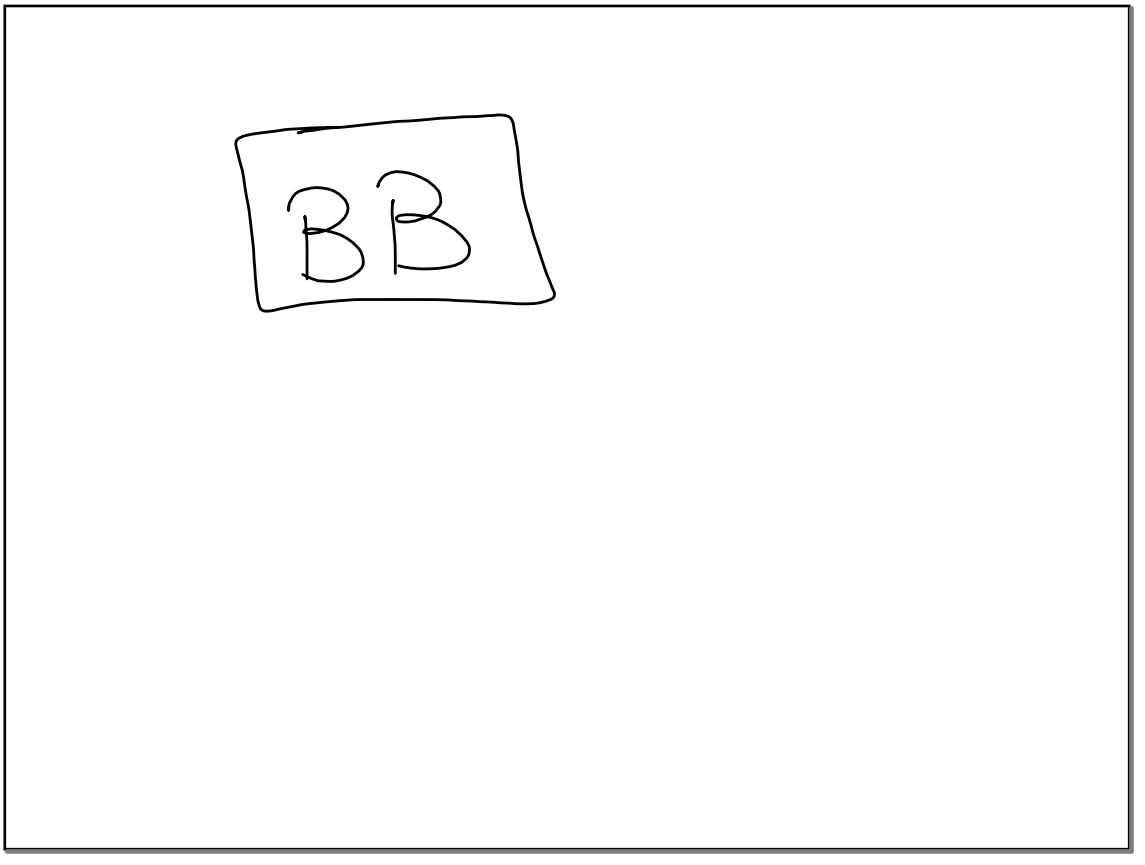


$\frac{x-2}{2x+3}$



domain

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


BB

Yesterday you took two functions

$g(x) = 4x-6$ $f(x) = 2x+3$

and combined them
in various ways

and combined them
in various ways

and some of those combinations created **Rational** Functions

$$\frac{2x+3}{4x-3}$$

Notes →

Today's AIM

simplify and Analyze the Graphs of

Rational FUNCTIONS

$f(x) = \frac{1}{x}$ parent

$g(x) = \frac{2x}{3x-7}$

$h(x) = \frac{2x^2+3x-7}{2x+5}$

$f(x) = \frac{\text{polynomial}}{\text{polynomial}}$

must be at least degree 1 (NO CONSTANTS)

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

anx# x^5

$5x^0$ (5)

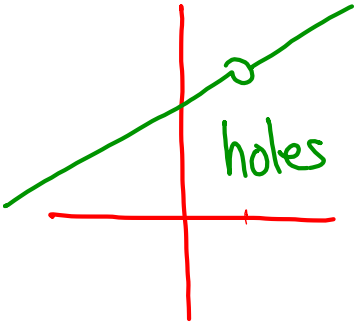
x^2 x^5 x^{11}

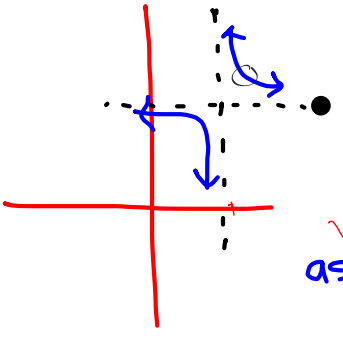
$4x^7$

x

Rational functions create graphs that have

2 types of vertical discontinuities





vertical asymptotes

- 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

Pair A

$f(x) = x - 2$

$g(x) = 2x + 3$

Pair B

$f(x) = x - 3$

$g(x) = 5x - 9$