

Warm UP

Find what would make the following quadratic expression a PERFECT SQUARE

$$x^2 + 6x + ?$$

Once everyone in your group understands how to answer the question above, then have one person pick up the warm up for everyone.

↳ DO 1, 2, 4, 5 only

Find what would make the following quadratic expression a PERFECT SQUARE

$$x^2 + 6x + \underline{9}$$

$$\underbrace{\hspace{10em}}$$

$$(x + 3)(x + 3)$$

$$(x + 3)^2$$

Skip 3, 6, and 7

1. Write the equation of a circle that has

a. a radius of 9 and a center of $(-4, 2)$ $(x+4)^2 + (y-2)^2 = 81$


b. a radius of 2.5 and a center of $(8, 0)$ $(x-8)^2 + y^2 = 6.25$

2. Factor any way you can

a. $88x^3 + 44x^2$ $\underline{44x^2}$ $(\quad) = 44x^2(2x+1)$

b. $64x^2 - 49$ $(\quad) (\quad) = (8x+7)(8x-7)$

3. Convert $y = x^2 + 10x + 500$ to graphing form using *Completing the Square*

$$y = x^2 + 10x + 500$$


vertex (,)

3. Convert $y = x^2 + 10x + 500$ to graphing form using *Completing the Square*

$$y = x^2 + 10x + 500$$

vertex (,)

4. Solve the quadratic equation using *Completing the Square*.

$$x^2 - 4x - 6 = 0$$

$$x^2 - 4x + 4 = 6 + 4$$

$(x-2)(x-2)$

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

$$\sqrt{\quad} \quad \sqrt{\quad}$$

$$x-2 = \pm\sqrt{10}$$

$$x = 2 \pm \sqrt{10}$$

Use the method of Completing the Square to convert the given equation of a circle in non-standard form to a circle in standard form, $(x - h)^2 + (y - k)^2 = r^2$

$$\left(\frac{6}{2}\right)^2 = 9$$

$$x^2 + 6x + y^2 + 6y = 15$$

$$\underbrace{x^2 + 6x + 9}_{\text{red}} + \underbrace{y^2 + 6y + 9}_{\text{blue}} = 15 + 9 + 9$$

$$(x+3)^2 + (y+3)^2 = 33$$

$$\text{center } (-3, -3) \quad r = \sqrt{33}$$

$$7. \frac{3}{(x-3)(x+1)} + \frac{6}{x+1}$$

Schedule

Today : 5.1.3

Mon : 5.2.1

Tues : 5.2.2

Wed : Review

Thur : Test on Ch.5

**Ch. 5 is a
short
chapter !**

Questions on HW

(33)

Domain: $-2 \leq x \leq 5$
Range: $-3 \leq y \leq 3$

Inverse

Domain:
Range:

(34)

a

$L(x) = x^2 - 1$

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

b

$$L(3) = (3)^2 - 1 = 8$$

$$R(8) = 3(8+2) = 30$$

c

$$R(3) = 3(3+2) = 15$$

$$L(15) = (15)^2 - 1 = 224$$

$$\textcircled{36} \quad \$175 \text{ birthday} + 237.54 \text{ savings} = \$412.54 \text{ amount to invest}$$

compound quarterly

2 years
x 4

$$FV = 412.54 (1 + \quad)$$

quarterly formula

3.25%

$$\textcircled{38} \text{ x-intercepts} \quad \textcircled{a} \quad y = (x-2)(x+1)$$

$$\textcircled{b} \quad y = 2x^2 + 16x + 30$$

39

$$2^{x+4} = 2^{3x-1}$$

exponent on
leftexponent
on
right

$$2 = 2$$

$$2' = 2'$$

$$2^6 = 2^6$$

$$2^7 = 2$$

Aim

What is a Composition
of Functions ?

NOTES

$$f(x) = 4x + 2$$

Input 10

output $\leftarrow 4(10) + 2$

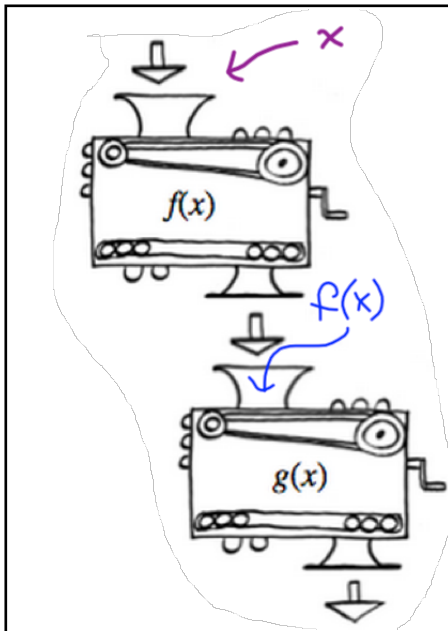
$x = 10 \leftarrow$ input

$f(10) \leftarrow$ output

Clarification before
We Start

$$f(10) = 42$$

$f(x)$



$g(10)$

$g(f(x))$

Notation

$g(f(x))$

$g \circ f$

example $f(x) = 2x^2$ • $g(x) = x-1$

find $f(g(x))$ and $g(f(x))$

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

$$= 2(x-1)(x-1)$$

$$= (2x-2)(x-1)$$

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

$$f(g(5))$$

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

$$= 2x^2 - 1$$

example 2 $h(x) = x^2 + x + 1$ $f(x) = 2x + 1$

find $f(3)$

$$2(3) + 1$$

$$= 7$$

$$h(7)$$

$$= 7^2 + 7 + 1$$

$$57$$

$f(h(3))$

$$h(3)$$

$$= 3^2 + 3 + 1 = 13$$

$$f(13)$$

$$= 2(13) + 1$$

$$= 27$$

example 3 •Write

$$e(x) = \sqrt{x-2}$$

[1]

$$e(f(x)) = \sqrt{\frac{x+2}{3} - 2}$$

$$f(x) = \frac{x+2}{3}$$

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

[2]

$$t(f(x)) = -\left(\frac{x+2}{3}\right)^2 + 5\left(\frac{x+2}{3}\right)$$

[3]

$$f(e(x)) = \frac{\sqrt{x-2} + 2}{3}$$

example 3 •Write

$$e(x) = \sqrt{x-2}$$

[1]

$$e(f(x))$$

$$f(x) = \frac{x+2}{3}$$

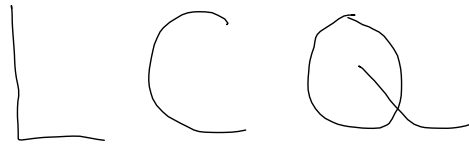
[2]

$$t(f(x))$$

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

[3]

$$f(e(x))$$

Handwritten letters 'L', 'C', and 'Q' in a simple, sketchy style.

- short check for learning
- You can use your NOTES spiral notebook
- You can use your GDC

Assignment

5....48-49, 50bc, 51-52, 54ac

be sure you are keeping up with your recording sheet (in a genuine way).... every day....

.... all of the listed assignments brought to class.