



please pick up the chapter 4 recording sheet

## WARM UP

solve the following quadratic equation using the method of completing the square & leave your answer(s) exact.

$$4x^2 - 24x + 13 = 0$$

in notes  $\nearrow$

$$\frac{4x^2}{4} - \frac{24x}{4} + \frac{13}{4} = \frac{0}{4}$$

completing the square method 1

$$x^2 - 6x + 9 = -\frac{13}{4} + \frac{9(4)}{1(4)}$$

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

$$\sqrt{(x-3)^2} = \sqrt{\frac{23}{4}}$$

$$\frac{-13 + 36}{4}$$

$$x - 3 = \pm \frac{\sqrt{23}}{2}$$

$$\frac{\sqrt{23}}{\sqrt{4}}$$

$$x - 3 = \frac{\sqrt{23}}{2}$$

+3      +3

$$x - 3 = -\frac{\sqrt{23}}{2}$$

$$x = 3 + \frac{\sqrt{23}}{2}$$

$$x = 3 - \frac{\sqrt{23}}{2}$$

$$4x^2 - 24x + 13 = 0$$

completing the  
square method 2

$$4x^2 - 24x = -13$$

$$4 \left[ x^2 - 6x + 9 \right] = -13 + 36$$

$$4 \left[ (x-3)^2 \right] = 23$$

Ch. 4

"SOLVING"  
&  
INTERSECTIONS

...building on what you already know...

TODAY

we are going to solve a variety of equations,  
that require a variety of **strategies**.

Checking our answers with a GDC if  
necessary

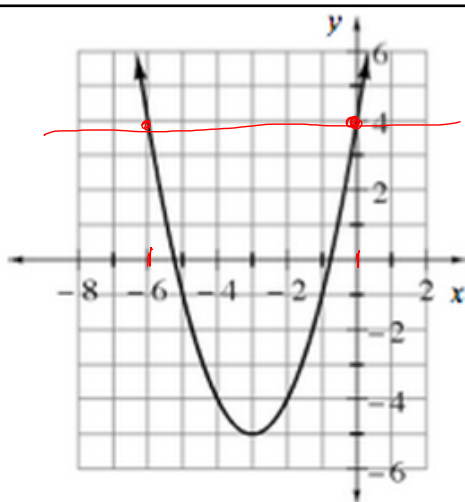


1/2 SHEET

\*about to solve graphically\*



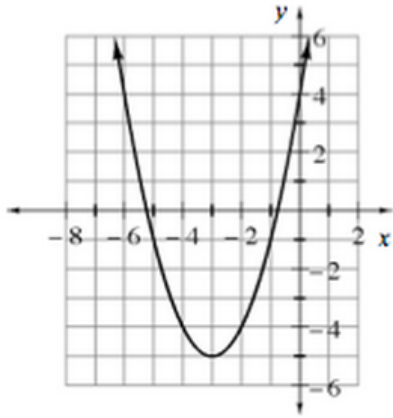
approximate answer



use the **graph** to  
solve the equation

$$(x+3)^2 - 5 = 4$$

$$y_1 \quad y_2$$



the graph was useful on

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

but what if you don't  
have an accurate  
graph?

or if the solution is far  
off the "map"?

solve the challenging equations on 4-4

**Start** @ b

P.170

strive for exact answers when possible

check in with team members to see the  
different strategies used...

just  
a reminder

Show your work neatly.

Be organized.

4-4 b  
P. 170

Practice using good notation.

B

$$3\sqrt{4x-8} + 9 = 15$$

⏟ ⏟  
 $y_1$   $y_2$

$$(\sqrt{4x-8})^2 = (2)^2$$

$$4x - 8 = 4$$

$$4x = 12 \quad \boxed{x=3}$$

Try using the graphical method



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

+2      +2

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

no solution

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

$+2$              $+2$

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

no solution

what about  
graphically?



time  
for



$$\frac{5}{x} + \frac{1}{3x} = \frac{4x}{3}$$

clear fractions

$$x = \pm 2$$

clear  
fractions

$$\frac{5}{x} + \frac{1}{3x} = \frac{4x}{3}$$

$$15 + 1 = 4x^2$$

$$0 = 4x^2 - 16 \quad \leftarrow \text{DIFF. SQ.}$$

$$0 = (2x - 4)(2x + 4)$$

$$2x - 4 = 0$$

$$x = 2$$

$$2x + 4 = 0$$

$$x = -2$$

$$15 + 1 = 4x^2$$

$$\frac{16}{4} = \frac{4x^2}{4}$$

$$16$$

$$\sqrt{4} = \sqrt{x^2}$$

$$\pm 2 = x$$

$$\text{or } x = \pm 2$$

$$\sqrt{16} = \sqrt{4x^2}$$

$$\frac{4}{2} = \frac{2x}{2}$$

check  
with  
GDC

(NOT SOLVING)

**F**

$$|3-7x| = 6$$

ship  
F

now 

algebraically



$$\frac{(6w-1)\cancel{15}^3}{\cancel{5}^1} - 3w\cancel{15} = \frac{12w-16\cancel{15}}{15}$$

$$3(6w-1) - 45w = 12w-16$$

$$18w-3-45w = 12w-16$$

$$-27w-3 = 12w-16$$

$$-12w$$

$$-39w-3 = -16$$

$$+3 \quad +3$$

$$\frac{-39w}{-} = \frac{-13}{-3}$$

$$\boxed{w = \frac{1}{3}}$$

clear fractions

$$3 \cdot \frac{6w-1}{5} - 15(3w) = \frac{15(12w-16)}{15}$$

$$3(6w-1) - 45w = 12w-16$$

$$18w - 3 - 45w = 12w - 16$$

$$\begin{array}{r} -27w - 3 \\ +27w \end{array} = \begin{array}{r} 12w - 16 \\ +27w \end{array}$$

$$\begin{array}{r} -3 \\ +16 \end{array} = \begin{array}{r} 39w - 16 \\ +16 \end{array}$$

$$13 = 39w$$

$$\frac{13}{39} = \frac{39w}{39}$$

$$\frac{1}{3} = w$$

$$H \quad (x+2)^2 + 4(x+2) - 5 = 0$$

ASSIGNMENT

4 ..... 7-10, 13bc, 14

