

Good afternoon: complete the warm up in your notebooks

Find the (x, y) solution to the system

$$\begin{cases} -6x + y = 22 \\ 12x - 4y = -28 \end{cases}$$

$$\begin{array}{r} \downarrow + \\ \begin{cases} -24x + 4y = 88 \\ 12x - 4y = -28 \end{cases} \\ \hline -12x = 60 \\ x = \frac{60}{-12} \\ x = -5 \end{array}$$

$$\begin{aligned} -6(-5) + y &= 22 \\ 30 + y &= 22 \end{aligned}$$

$$y = -8$$

$$(-5, -8)$$

Should be straightforward if you watched the video last night!

Reminders:

- tutoring today 4-5p
- assessment Monday
- retakes available in DS (ask for pass)

Visibly Random Grouping

Factoring Quadratics, continued

Find all values of x such that $3x^2 - x = 14$

$$3x^2 - x - 14 = 0$$

$$(3x - 7)(x + 2) = 0$$

check:

$$(3x - 7)(x + 2)$$

$$3x^2 + 6x - 7x - 14$$

$$3x^2 - x - 14$$

$$3x - 7 = 0$$

$$3x = 7$$

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

$$x + 2 = 0$$

$$x = -2$$

$$-5x^2 = -37x - 24$$

- ① List in Standard form
 $Ax^2 + Bx + C = 0$
- ② Factor into 2 binomials
- ③ List out pairs of factors of 14:
~~1, 14~~; 2, 7
- ④ Find pair w/ sum/diff of 1.
- ⑤ Set factors = 0, solve.

$$-5x^2 = -37x - 24$$

$$0 = 5x^2 - 37x - 24$$

$$0 = (5x + 3)(x - 8)$$

$$5x + 3 = 0$$

$$5x = -3$$

$$x = -\frac{3}{5}$$

$$x - 8 = 0$$

$$x = 8$$

24: 1, 24 4, 6
2, 12
★ $\boxed{3, 8}$ 40

$$-5x^2 + 37x + 24 = 0$$

$$(-5x \quad)(x \quad)$$

Find all real solutions.

$$x^2 - 4x - 10 = 0$$

$$(x)(x) = 0$$

$$x^2 - 4x - 10 = 0$$

$$x^2 - 4x = 10$$

$$\left(\frac{-4}{2}\right)^2 = (-2)^2 = 4$$

$$x^2 - 4x + 4 = 10 + 4$$

$$(x-2)(x-2) = 14$$

$$\sqrt{(x-2)^2} = \sqrt{14}$$

$$x-2 = \pm\sqrt{14}$$

$$x = 2 \pm \sqrt{14}$$

"Completing the Square"

$$10: \begin{matrix} 1, 10 \\ 2, 5 \end{matrix}$$

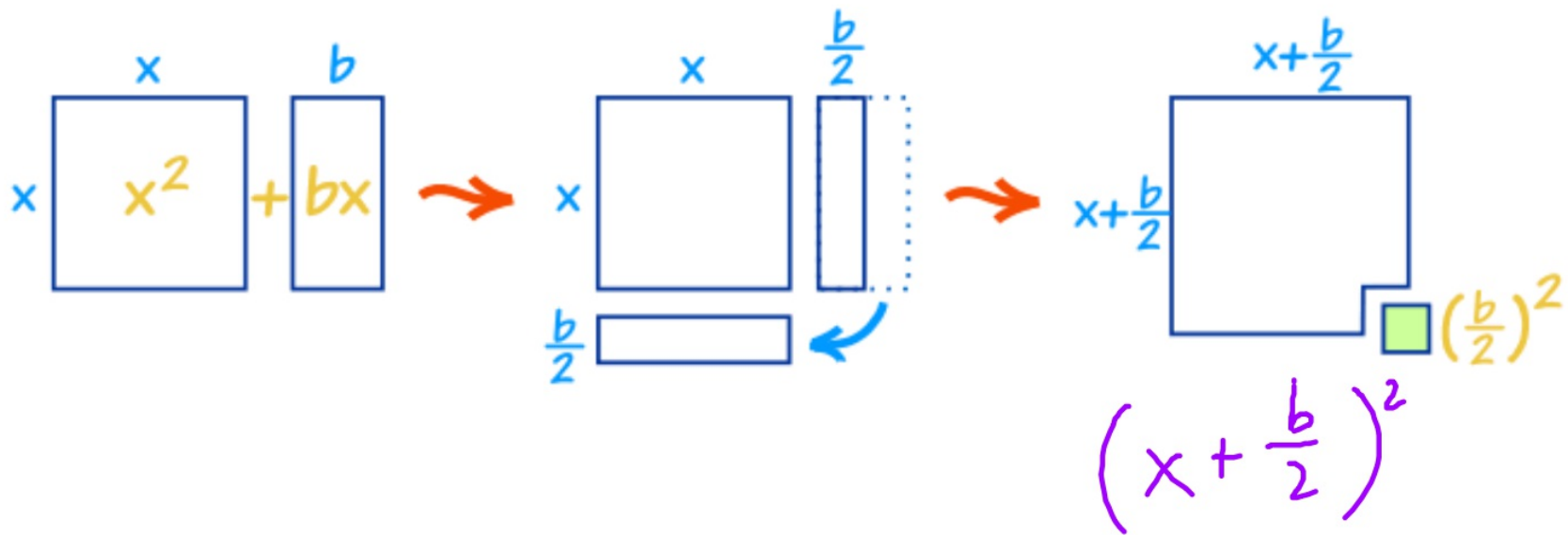
① move "C" to other side.

② Take B, half it, square it, then add * result to both sides.

$$+\left(\frac{B}{2}\right)^2$$

③ Factor, simplify.

④ solve for X.



Find all real solutions.

$$x^2 - 8x + 13 = 0$$

$$x^2 - 8x = -13$$



$$\star \left(-\frac{8}{2}\right)^2 \rightarrow (-4)^2 \rightarrow 16 \star$$

$$\left(\frac{x^2 - 8x + 16}{(x-4)(x-4)} = -13 + 16 \right)$$

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

$$x - 4 = \pm \sqrt{3}$$

$$x = 4 \pm \sqrt{3}$$

How does this connect to geometry?

Center and radius of this circle equation?

$$(x-4)^2 + (y+2)^2 = 81$$
$$(x-h)^2 + (y-k)^2 = r^2$$

(h, k)

$(4, -2)$

$r = 9$

Center and radius of this circle equation?

$$x^2 - 8x + y^2 - 6y + 9 = 25$$

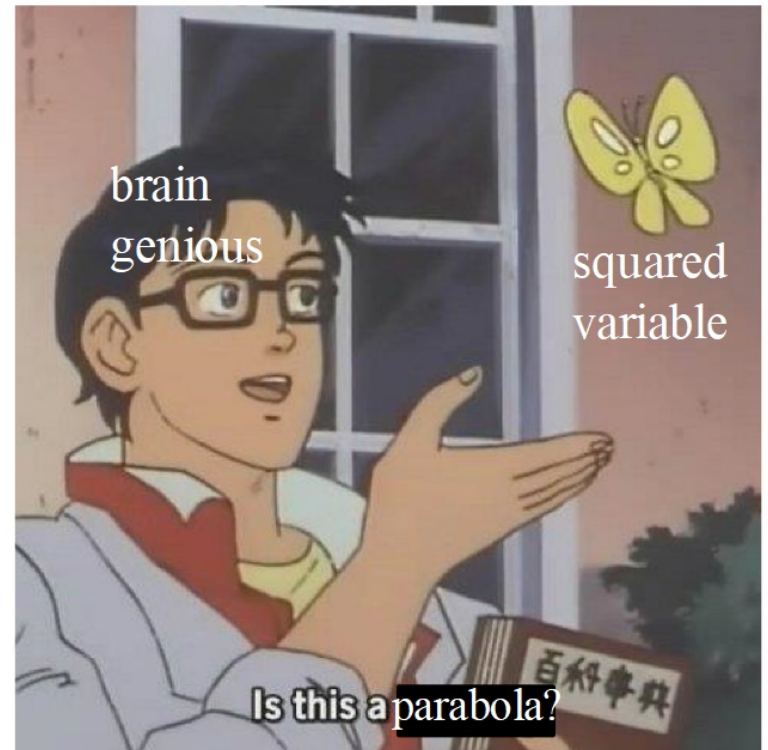
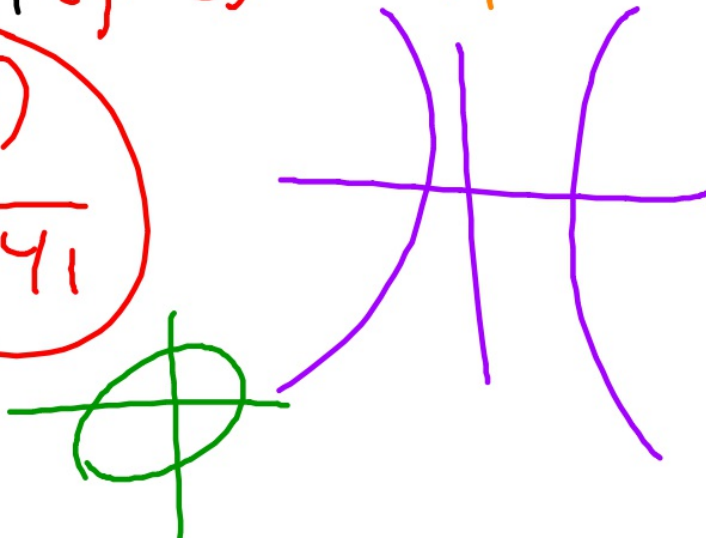
$$\underline{x^2 - 8x} + \underline{y^2 - 6y + 9} = 25$$

$$\underline{x^2 - 8x + 16} (y - 3)(y - 3) = 25 + 16$$

$$(x - 4)(x - 4) + (y - 3)^2 = 25 + 16$$

$$(x - 4)^2 + (y - 3)^2 = 41$$

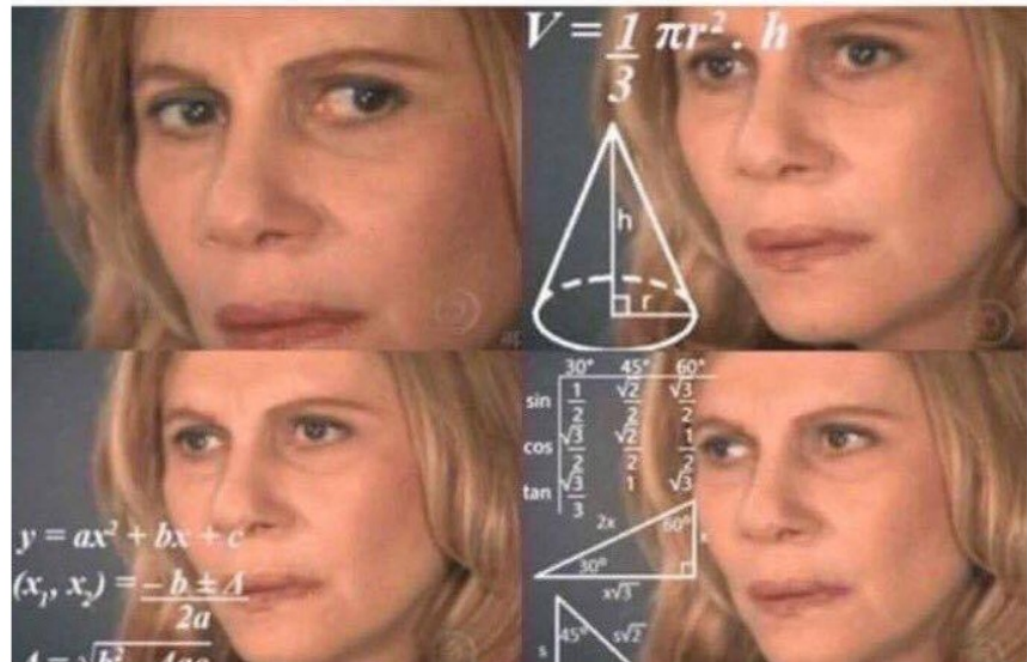
$$(4, 3)$$
$$r = \sqrt{41}$$



Share with a partner something
you've learned so far today.

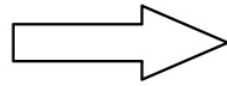
To be a good thinker in math, you need to be fluent thinking...

- ...verbally
- ...numerically
- ...algebraically
- ...graphically



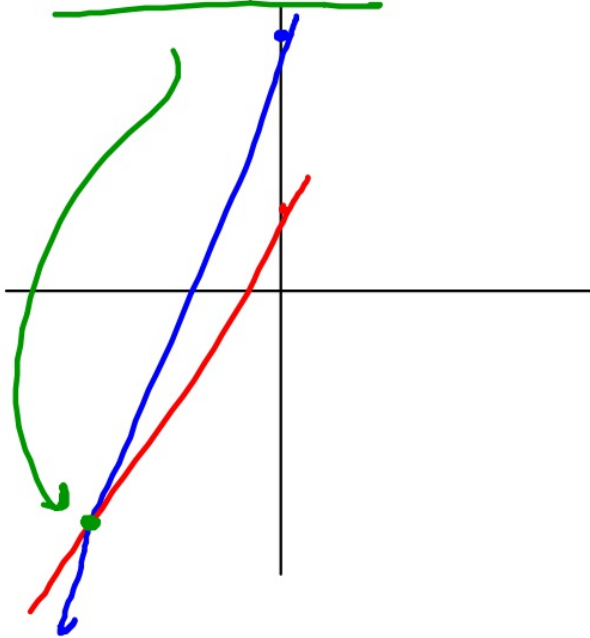
What does the warm up mean graphically?

$$\begin{cases} -6x + y = 22 \\ 12x - 4y = -28 \end{cases}$$



$$\begin{cases} y = 6x + 22 \\ y = 3x + 7 \end{cases}$$

$(-5, -8)$



<https://www.desmos.com/calculator/g1ancwwvev>

Find the (x,y) solution to the linear system:

$$\begin{cases} 9x + 4y = 4 \\ -8x - 5y = -18 \end{cases}$$

$$\begin{array}{r} 45x + 20y = 20 \\ + \quad -32x - 20y = -72 \\ \hline \end{array}$$

$$13x = -52$$

$$\underline{x = -4}$$

$$\underline{(-4, 10)}$$

$$9(-4) + 4y = 4$$

$$-36 + 4y = 4$$

$$4y = 40$$

$$\underline{y = 10}$$

HW

handout #1-11 (odd)

last assessment: Monday

Peer Tutoring DS

Same seats as usual

What to work on:

- watch hw video with headphones
- ask for tonight/Wed's hw handout and start early if you are able
- study for a retake with a 'retired' reassessment from back table
- get hw done for retakes (formula quiz does not need hw)
- retake skills you need to bring up! don't keep putting it off

Please monitor your noise level out of respect for those finishing tests or doing retakes. Thank you