

## Warm Up

\*Get out your test folder and start working on your cheat sheet. (15 minutes)

\*We will go over the test next!

$$\textcircled{9} \quad 2x - y + 2z = -21$$

$$x + 5y - z = 25$$

$$-3x + 2y + 4z = 6$$

$$\begin{bmatrix} 2 & -1 & 2 \\ 1 & 5 & -1 \\ -3 & 2 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -21 \\ 25 \\ 6 \end{bmatrix}$$
$$\begin{bmatrix} \phantom{2} \\ \phantom{1} \\ \phantom{-3} \end{bmatrix}^{-1} \cdot \begin{bmatrix} -21 \\ 25 \\ 6 \end{bmatrix}$$

①

$$\begin{array}{r} x + y = 5000 \\ -x \phantom{+} \\ \hline \end{array}$$

$$\begin{array}{r} .06x + .08y = 360 \\ -x \phantom{+} \\ \hline \end{array}$$

$$y = -x + 5000$$

$$\$ 3,000$$
$$\$ 2,000$$

(4)

 $x = \text{wheat}$  $y = \text{barley}$ 

$$5000x + 3000y$$

$$x + y \leq 8$$

$$2x + y \leq 10$$

$$(2, 6)$$
$$(0, 8) \quad (5, 0)$$

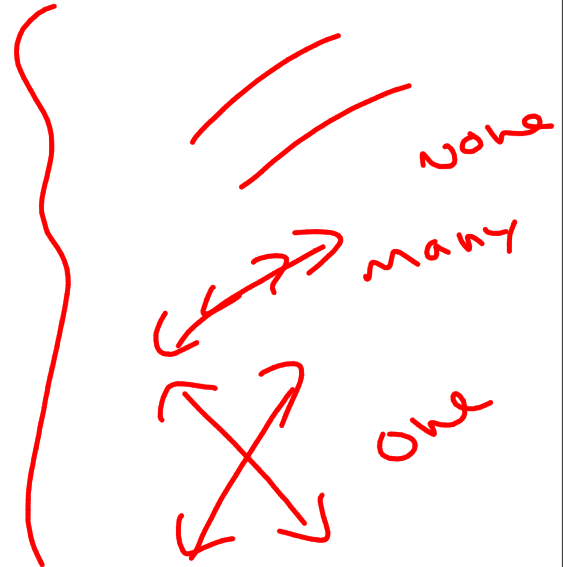
$X = \text{Echo Lane}$

$Y = \text{Canyon Ridge}$

$$2400X + 2100Y \text{ min}$$

$$200X + 300Y \geq 2400$$

$$300X + 200Y \geq 2100$$



④  $y = x^2 + 4x + 4$

$x = -\frac{b}{2a}$   
 $x = -\frac{4}{2(1)} = -2$

$y = (-2)^2 + 4(-2) + 4$   
 $y = 4 - 8 + 4$   
 $y = 0$

$(-2, 0)$

$$3x^2 + 6x + 2 = 4x^2 - 2x + 18$$

$$0 = x^2 - 8x + 16$$

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

$$x = 4$$

(14)

$$\begin{bmatrix} -6 & 4 \\ -3 & 2 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \end{bmatrix} \begin{bmatrix} 4 \\ -2 \end{bmatrix}$$

$2 \times 2$        $2 \times 1$        $1 \times 1$

$$\begin{bmatrix} -8 & 22 & -26 \\ -4 & 11 & -13 \end{bmatrix}$$





Review

13. Solve the following non-linear system.

$$\begin{cases} y = |x^2 - 3| + 1 \\ x + 2y = 8 \end{cases}$$

$|0 - 3| + 1$   
 $3 + 1$

- A) (0, 4)    B) (4, 2)    C) (4, 2) and (0, 4)    D) they don't intersect    E) None of these

14. An equation is shown, where  $a$ ,  $b$ , and  $c$  are integers.

$$y = a(x - b)^2 + c$$

Brian claims that this equation will always have two roots.

Scott claims that this equation will always have zero roots.

Which of the following equations shows that both Brian and Scott are incorrect?

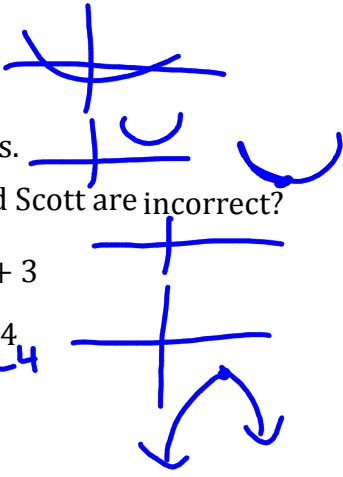
A)  $y = \frac{1}{2}(x + 5)^2$

B)  $y = \frac{-1}{3}(x + 3)^2 + 8$

C)  $y = 3(x - 6)^2 + 3$

D)  $y = -(x - 3)^2 - 4$

E) None of these



Review

7. Which of the following is NOT a solution of  $(x+2)(x-4)(x+1)(x-3) = 0$ ?  $x = -2, 4, -1, 3$

- A) -1      B) 3      **C) -3**      D) 4      E) None of these

8. Factor the polynomial completely:  $x^3 - 5x^2 - 4x + 20$

- A)  $(x^2 - 4)(x - 5)$       **B)  $(x + 2)(x - 2)(x - 5)$**       C)  $(x + 2)(x + 2)(x - 5)$   
 D) not factorable      E) None of these

$(x^3 - 5x^2 - 4x + 20)$   
 $x^2(x-5) - 4(x-5)$   
 $(x^2-4)(x-5)$   
 $(x+2)(x-2)(x-5)$

9. Solve the equation:  $5x^6 - 20x^2 = 0$

- A)  $x = 0, \sqrt{2}, -\sqrt{2}, i\sqrt{2}, -i\sqrt{2}$

- B)  $x = 0, 2, -2, 2i, -2i$       C)  $x = 4, -4$   
 D)  $x = 0$       E) None of these

$5x^6 - 20x^2$

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

$5x^2 = 0$        $x^2 + 2 = 0$   
 $x = 0$        $\sqrt{x^2} = \sqrt{2}$

$x^2 - 2 = 0$        $x = i\sqrt{2}$   
 $\sqrt{x^2} = \sqrt{2}$        $\pm i\sqrt{2}$   
 $x = \pm\sqrt{2}$

## Final Exam

-> Part 1: Free Response (no calc.)-  
30questions

-> Part 2: Multiple Choice (calc.)-  
50questions

\*You can use a half sheet of paper on your  
final!

## Free Response

- ★ Matching a graph with an equation.
- ★ Graph
  - piecewise function
  - 2 variable systems
  - absolute value
  - quadratic (standard, vertex, intercept form)
- ★ Solve quadratics (factoring, square root method, and completing the square)
- ★ Long Division
- ★ Matrices
- ★ Solving Nonlinear systems
- ★ Linear Programming

## Multiple Choice

- ★ Match equation with graph.
- ★ Find intercepts of linear functions.
- ★ Write equations of lines (given two points/point and a slope).
- ★ Solving quadratics
- ★ Imaginary Numbers
- ★ Discriminant
- ★ Factoring Higher Order Functions
- ★ Graphing Higher Order Functions (end behavior, number of roots)

## Ch2->Linear Equations and Functions

functions-pg77 #13, 17

graphing(linear)-pg93 #15/pg94 #37

slope-pg 86 #9, 11

writing equations of lines pg102 #15, 35

Best fitting lines pg 117 #3-5, 11

graphing inequalities-pg135 #15

piecewise functions-pg131 #3, 6, 7

absolute value-pg127 #13, 19

## Ch 4->Quadratic Functions

graphing- pg240 #15,21 pg249 #5, 19

factoring-pg255 #5, 7 pg 263 #11, 15

solve(sq. roots) pg270 #31

complex numbers-pg279 #11, 17, 25

completing the square-pg288 #27

quadratic formula-pg296 #19

discriminant-pg296 #39



# Kahoot

## CH 4

[https://create.kahoot.it/?  
\\_ga=1.166144246.950889830.1446222497&deviceId=8fd694f8-dc82-4f06-9aa4-  
d5212ce69534#quiz/550d2c6e-908d-4b3b-b424-2d3f046f3cbf](https://create.kahoot.it/?_ga=1.166144246.950889830.1446222497&deviceId=8fd694f8-dc82-4f06-9aa4-d5212ce69534#quiz/550d2c6e-908d-4b3b-b424-2d3f046f3cbf)

[https://play.kahoot.it/#/k/  
3eaaf73c-9ecd-4dbf-9936-369caeafb344](https://play.kahoot.it/#/k/3eaaf73c-9ecd-4dbf-9936-369caeafb344)

## Ch 5->Polynomials

end behavior-pg.342 #29, 31

add/subt/mult-pg349 #11, 21

factoring-pg357 #7, 11, 13, 23

division-pg366 #3, 17

solving- pg366 #29

pg374 #17

write equation given zeros-pg384 #21

graph-pg390 #3, 9

Ch 3->Systems of Linear Equations and Matrices  
solving systems(2 var)-pg156 #9, 21  
pg 164 #5, 29  
solving systems(3-variable)-pg182 #9, 11  
add/subtract/mult. by scalar- pg191 #5, 6, 21  
multiplying-pg199 #13

### Ch3 Advanced Systems

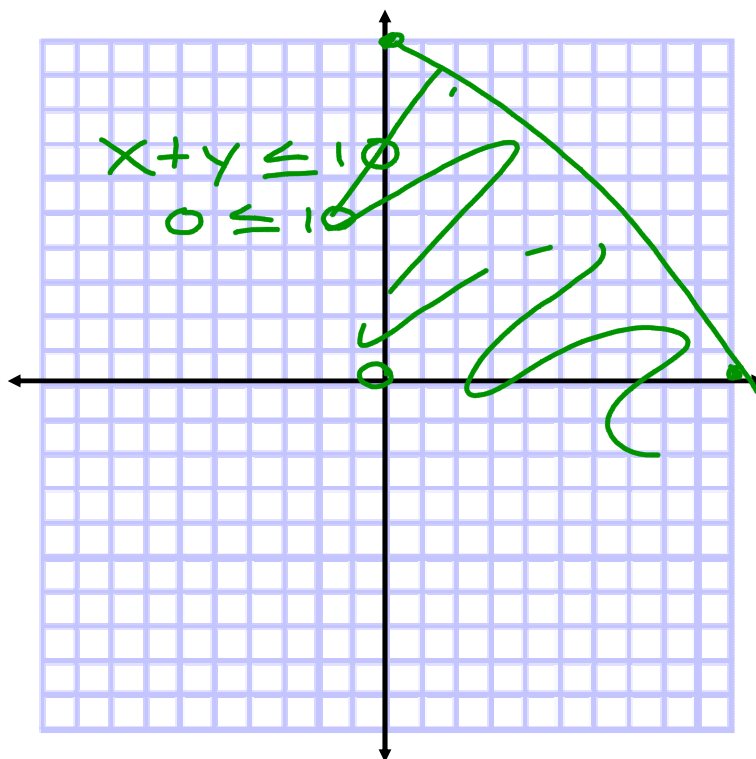
graphing inequalities-pg171 #9, 19

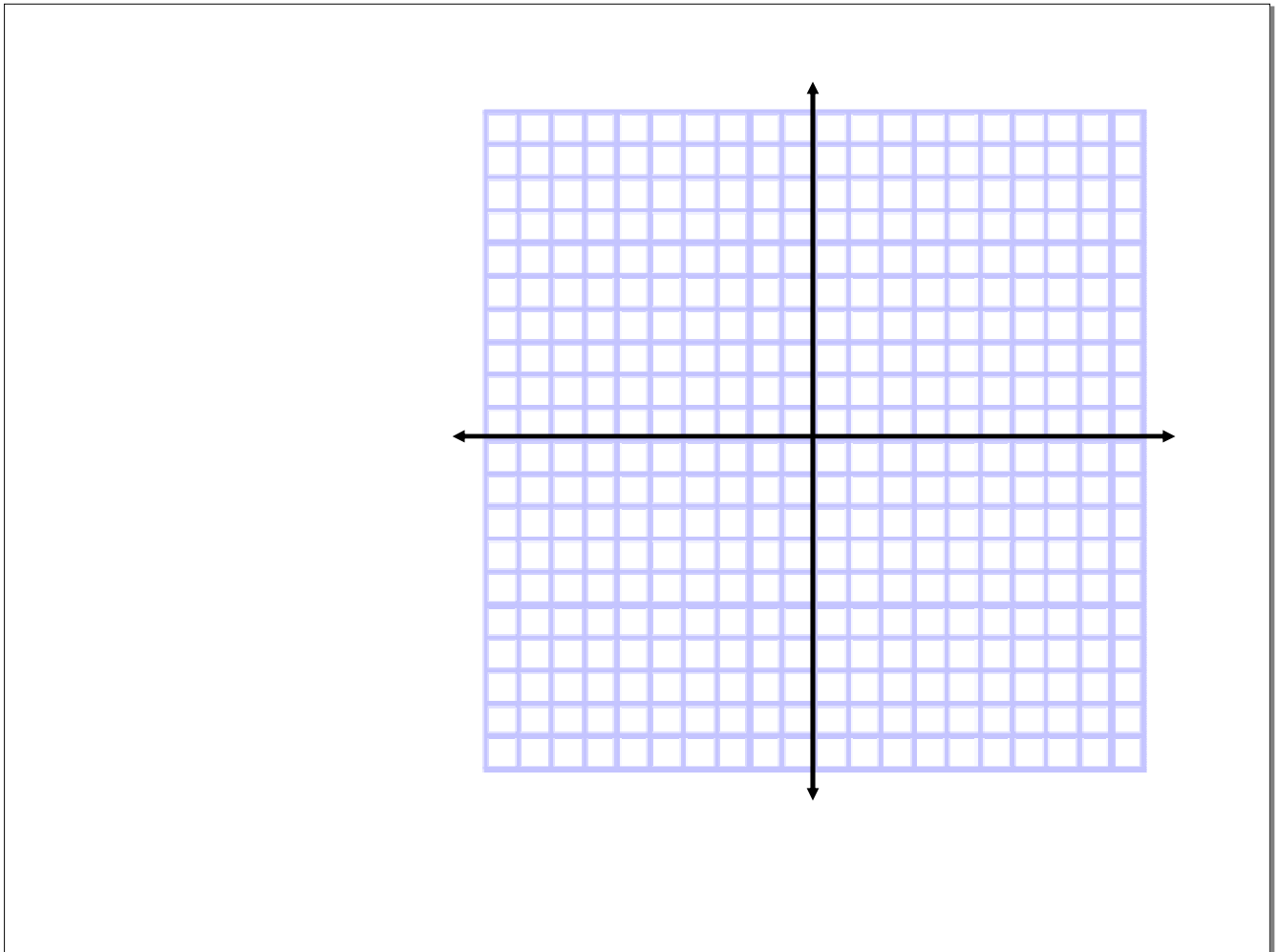
Linear programming-pg176 #3, 5, 7

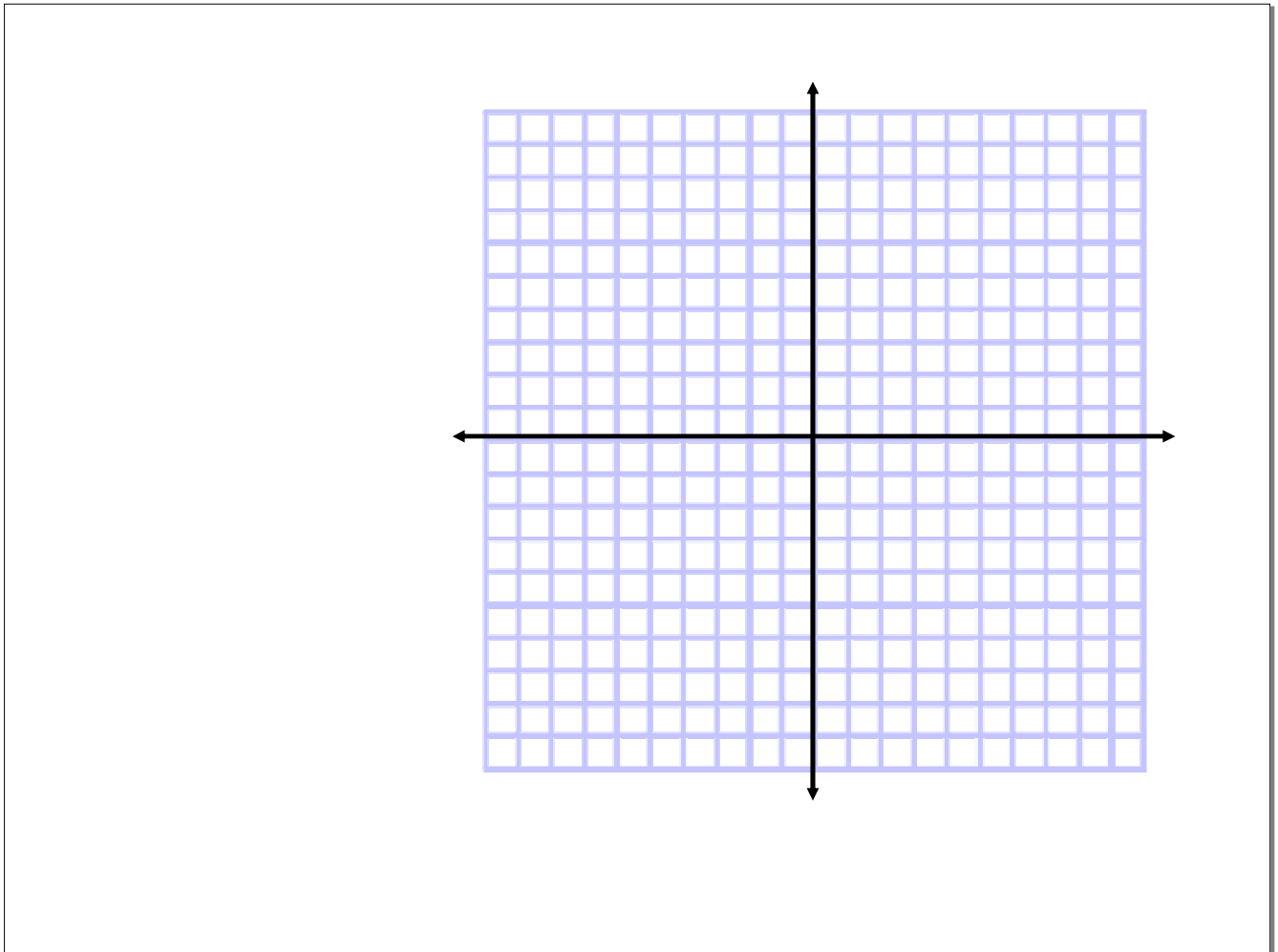
$$x^2 + 4 = 16$$

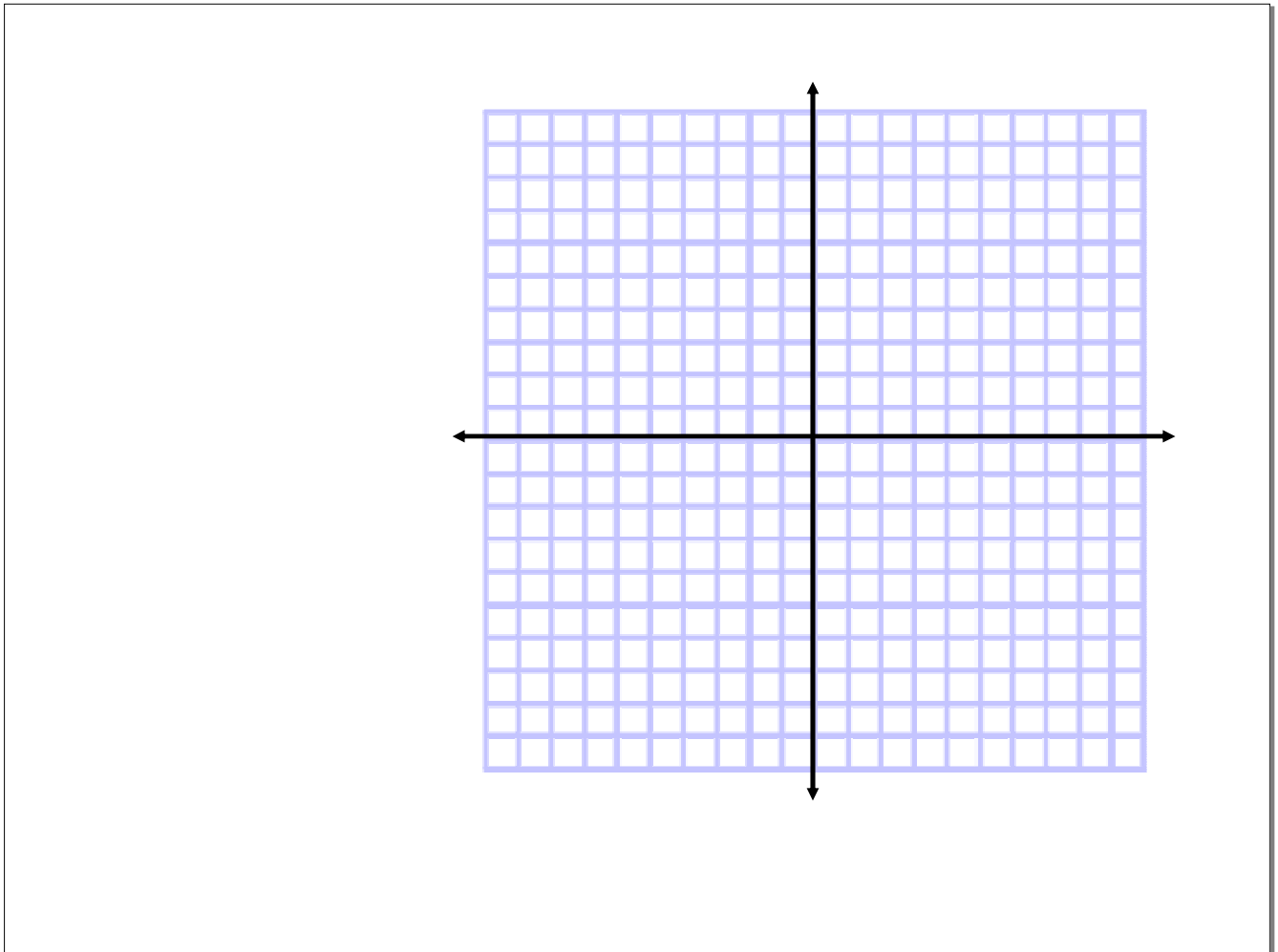
$$\begin{array}{l}
 2, -i, i \\
 x=2 \quad x=-i \quad x=i \\
 (x-2)(x+i)(x-i) \\
 x^2 - 2x + 2ix - 2i + x^2 - i^2 \\
 (x-2)(x^2+1)
 \end{array}$$

$$\sqrt{96}$$
$$\frac{\sqrt{16}\sqrt{6}}{4\sqrt{6}}$$











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Extra practice problems

★7th Block Final-December 19th

★6th & 8th Block Final-December 20th