

Welcome to Math Enrichment

You will need a
calculator, paper, and a
pencil today!

Goal: You will answer the review questions correctly.

COMPREHENSIVE REVIEW FOR ALGEBRA ECA

Day 10 Agenda:

- Review Questions

End-of-Course Assessment
ISTEP+: Algebra I Graduation Examination
Reference Sheet

Equation of a Line		
Slope-Intercept Form: $y = mx + b$ where $m =$ slope and $b =$ y -intercept	Point-Slope Form: $y - y_1 = m(x - x_1)$ where $m =$ slope and (x_1, y_1) is a point on the line	Standard Form of a Linear Equation: $Ax + By = C$ where A and B are not both zero

Slope of a Line
<p>Let (x_1, y_1) and (x_2, y_2) be two points in the plane.</p> $\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$ <p>where $x_2 \neq x_1$</p>

Standard Form of a Quadratic Function

$$f(x) = ax^2 + bx + c$$

where $a \neq 0$

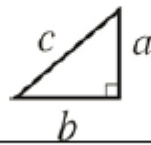
$$\text{axis of symmetry : } x = -\frac{b}{2a}$$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where $ax^2 + bx + c = 0$ and $a \neq 0$

Pythagorean Theorem


$$a^2 + b^2 = c^2$$

1. *Simplify* $\sqrt{320}$

2. Simplify $\left(\frac{x^7}{x^3}\right)^5$

3. What is the y -intercept of the line $3y - x = 15$

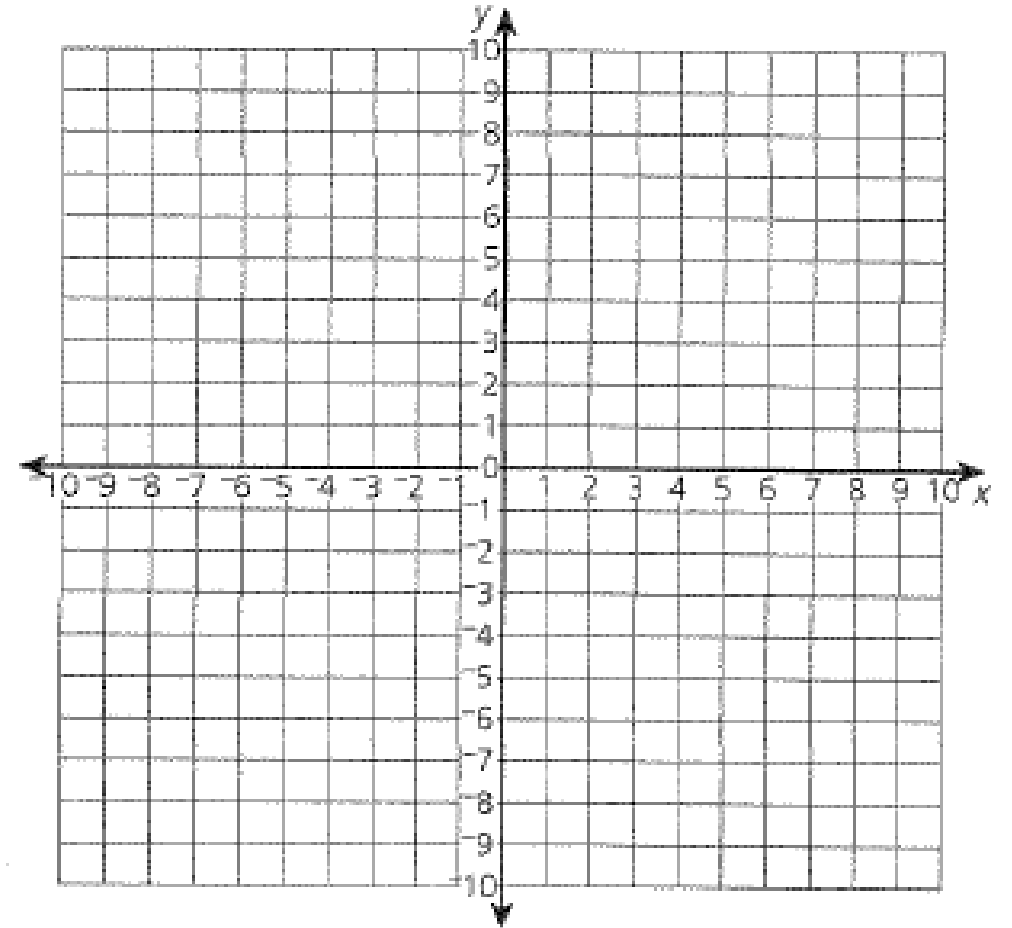
4. Find the solution for, $2x + 3 + x = 5x - 7$

5. Solve $5x + 12 \leq -3x - 4$

6. Graph and find the solution for the following linear system

$$x = y$$

$$3x + y = 24$$



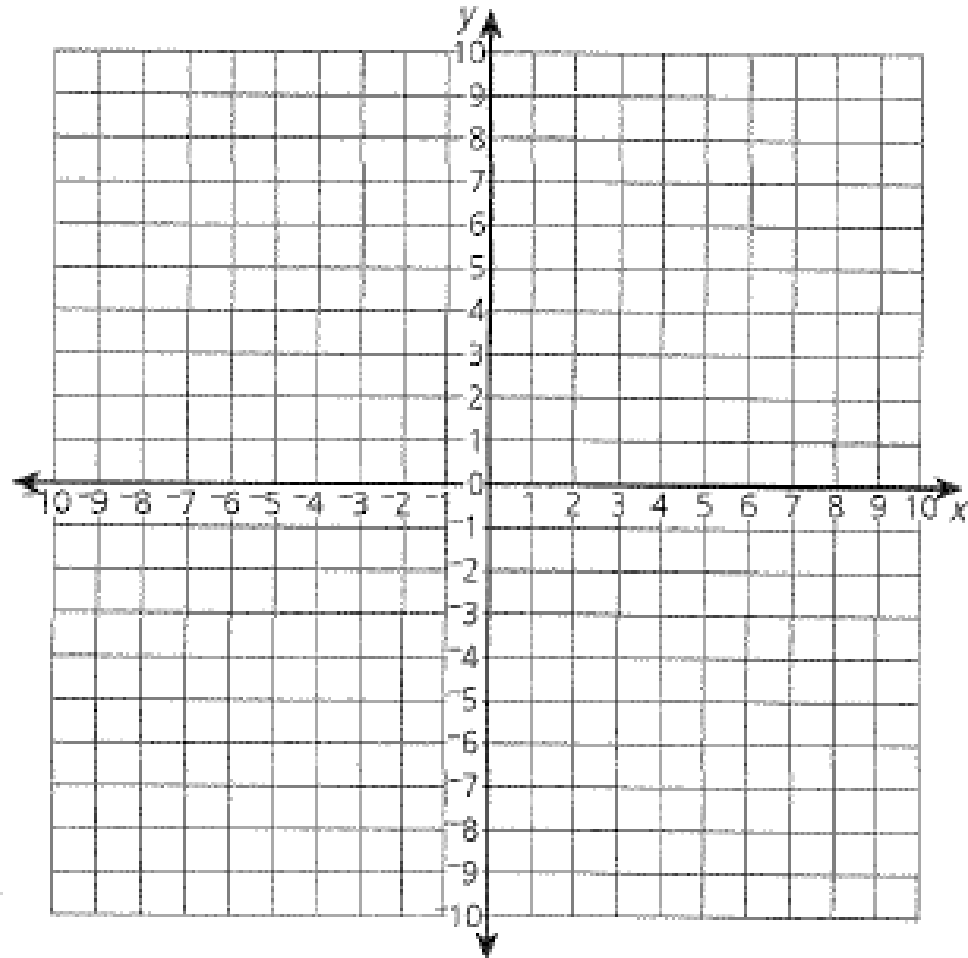
7. Add, $(x^4 + 3x^3 - 2x^2 + x) + (x^3 - x^2 + 4)$

8. Subtract, $(3x^5 + x^3 - 7x^2 + 10) - (x^3 - x^2 + 4)$

9. What is the Domain of ,
 $\{(-3,6), (5, 8), (8,0), (11, 7), (20,6) \}$

10. Plot points:

$$\{(-3,0), (0,8), (2,5), (-9,-2), (3,-6)\}$$



12. Graph the solution to , $3x - 7 \geq 2x + 5$

13. Find the solution for the following linear system

$$y = 0.5x + 5$$

$$y = -3x + 1$$

14. Find the slope of the line going through points $(-1, 3)$ & $(5, -7)$

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

15. Find the product,

$$a^2b^3c(a^5b^0)$$

16. Divide,

$$\frac{3x^4 - 6x^2 + 15x}{3x}$$

17. What is the equation of the line going through points (0, -2) & (3, 2)

Point-Slope Form:

$$y - y_1 = m(x - x_1)$$

where $m = \text{slope}$ and
 (x_1, y_1) is a point on the line

18. Find the slope of a,

- a. Parallel line to the one you found in problem #17
- b. Perpendicular line to the one you found in problem #17

19.

Is the following relation a function? Explain your reasoning

$\{(2, 5), (3, 8), (4, 10), (4, 12), (5, 19)\}$

20. Find the equation of the line with a slope of $\frac{1}{2}$ and the point (3, 4).

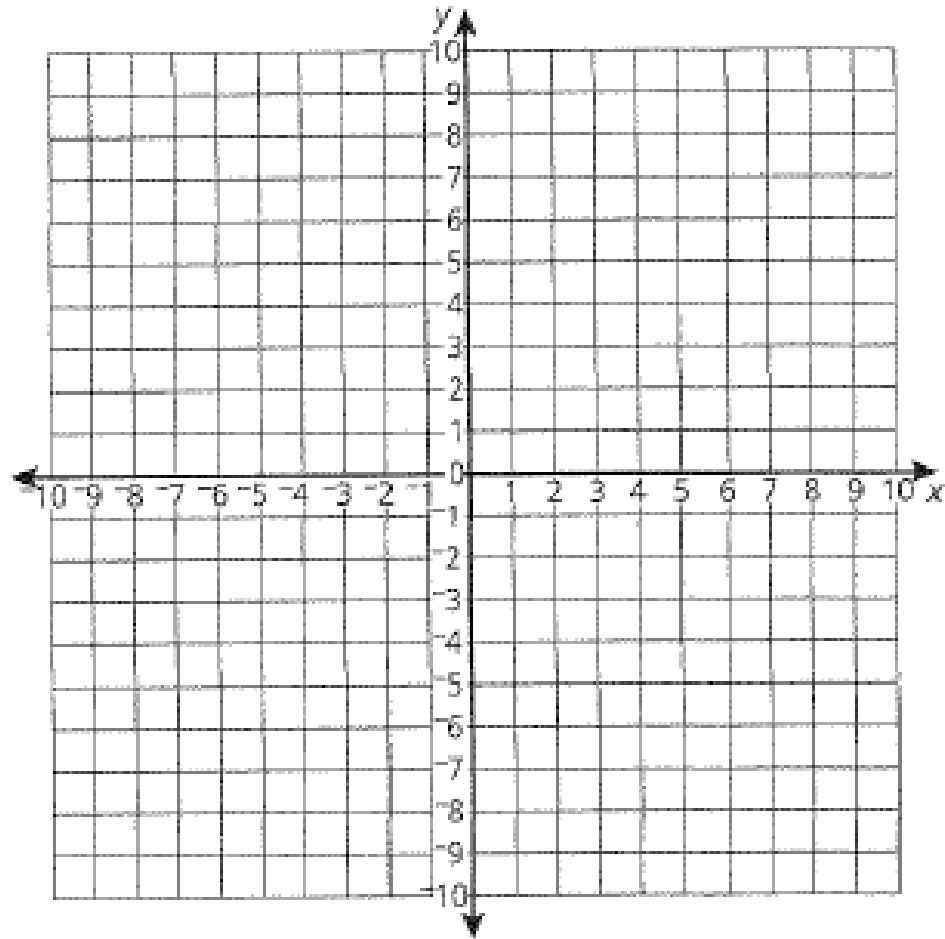
Point-Slope Form:

$$y - y_1 = m(x - x_1)$$

where $m = \text{slope}$ and
 (x_1, y_1) is a point on the line

21. Solve and show the solution graphically, $5 < 6 - 6x \leq 12$

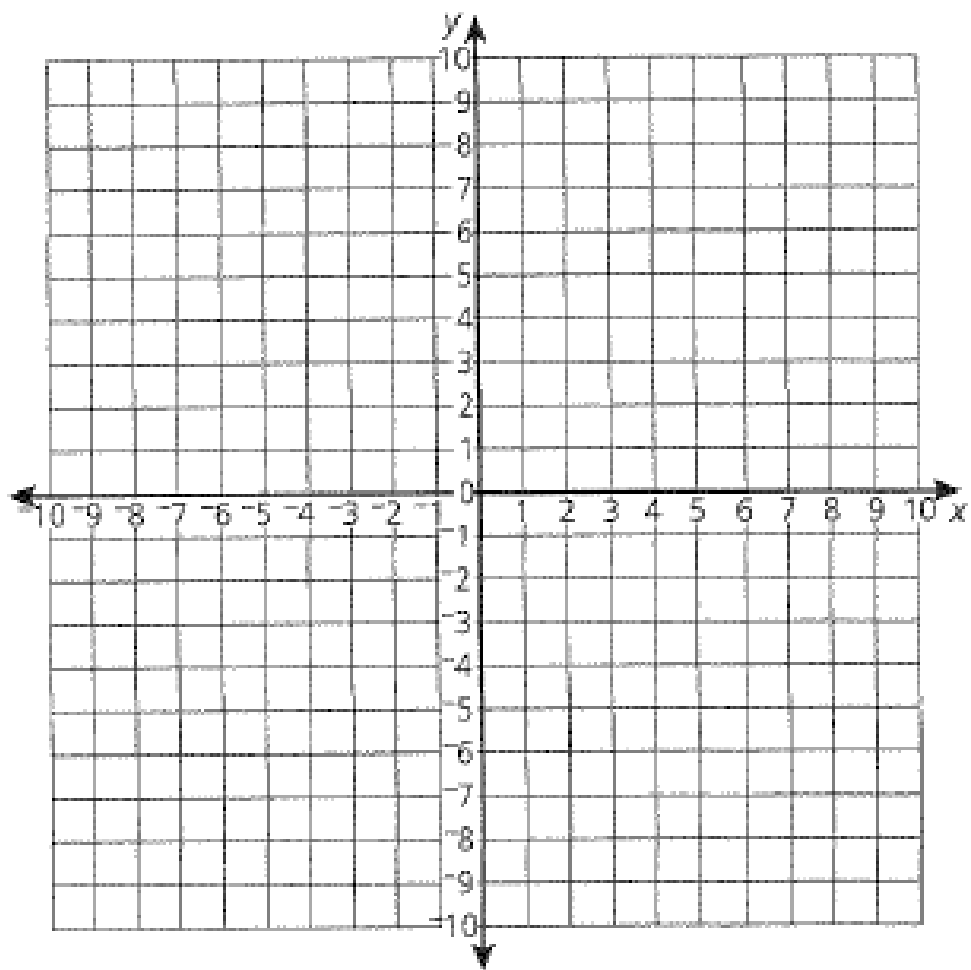
22. Write the equation $3y + 5x = 15$ in Slope-intercept form, and graph the line.



Slope-Intercept Form:

$$y = mx + b$$

23. Graph the solution set to the system,
 $y > 2x - 5$
 $y \leq 5$



24. Solve the system using elimination method,

$$3x - y = 24$$

$$-3x + 5y = 4$$

25. Use the Quadratic formula to solve $3x^2 - x - 4 = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



KEEP CALM

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DO THE MATH