Geometry Prerequisite Skills Practice Worksheet

Name: _____ Date: _____

The following problems represent many of the algebraic skills that are needed throughout your geometry course.

I. Solving Quadratic Equations –
https://tinyurl.com/summathvid1 **https://tinyurl.com/summathvid2**

Solve. Check your solutions. Simplify your answer whenever possible.

1. $x^2 = 500$

2. $x^2 + 3x - 28 = 0$

3. $x^2 = 5x$

4. $x^2 - 9x = -18$

5. $2x^2 + 11x - 21 = 0$

6. $2x^2 + 4x - 7 = 0$

II. Systems of Equations –
https://tinyurl.com/summathvid3 **https://tinyurl.com/summathvid4**

Solve the following systems of equations. Check your solutions.

7. $\begin{cases} 3x - 2y = 16 \\ 5x + 2y = 8 \end{cases}$

8. $\begin{cases} x + 2y = 6 \\ 3x + 4y = 10 \end{cases}$

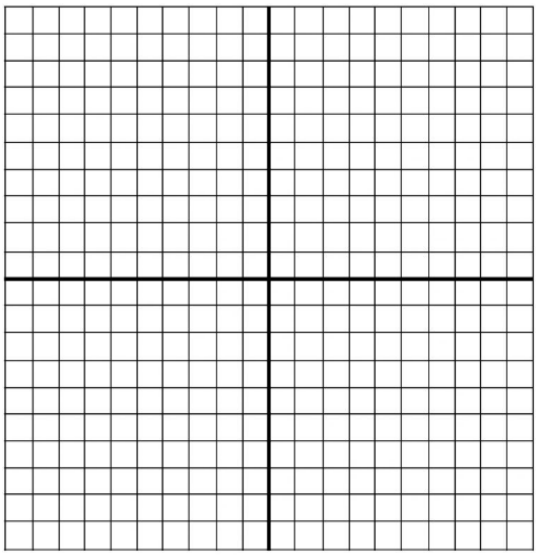
9. $\begin{cases} y = 2x + 7 \\ y = -3x - 13 \end{cases}$

10. $\begin{cases} \frac{1}{2}x + \frac{1}{3}y = -4 \\ \frac{1}{5}x + \frac{1}{5}y = -2 \end{cases}$

III. Determining the Slope and Equation of a Line, and Plotting Points

https://tinyurl.com/summathvid5 - Graphing
https://tinyurl.com/summathvid6 - Plotting
https://tinyurl.com/summathvid8 - Parallel & Perpendicular
https://tinyurl.com/summathvid9 - Slope b/w points

11. Plot the following points on the coordinate plane:
    a. A(3, -5)
    b. B(7, 2)
    c. C(4, 0)
    d. D(0, -6)
    e. E(2, -8)
    f. F(-7, 4)



Questions 12 – 15 refer to the points in Question 11.

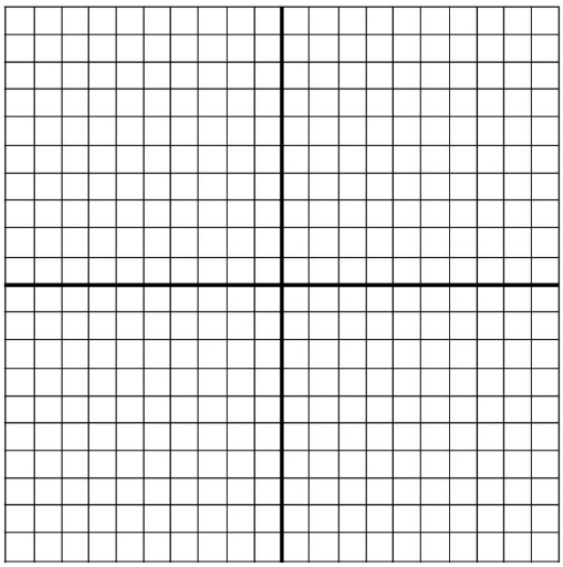
12. Find the slope of the line passing through A and B.

13. Find an equation of the line passing through D with a slope of $-\frac{4}{3}$.

14. Find an equation of the line passing through E that is parallel to the graph of $y = 3x + 5$.

15. Find an equation of the line passing through E that is perpendicular to the graph of $y = \frac{2}{3}x + 1$.

16. Graph the equation $y = -\frac{1}{2}x + 3$. Identify the slope, the *y*-intercept, and the *x*-intercept.



slope: _____

y-intercept: _____

x-intercept: _____

IV. Simplifying Rational Expressions - https://tinyurl.com/summermathvid10

Simplify. Rationalize denominators.

17. $\sqrt{50}$

18. $2\sqrt{27}$

19. $\sqrt{\frac{2}{3}}$

20. $\frac{8}{\sqrt{2}}$

V. Solving Linear Equations - https://tinyurl.com/summermathvid7

Solve. Check your solutions.

21. $5x - 7 = -10x + 8$

22. $7y + 3 = 4y - 18$

23. $-3(y + 3) = 2y + 3$

24. $2(-3a + 5) = -4(a + 4)$

25. $6x - 4 = 2(3x - 2)$

26. $-6x + 9 = 4(5 - x)$

27. $3(x + 2) = -5 - 2(x - 3)$

28. $2(x-3)=\frac{1}{2}(4x+12)$

29. $2(x-3)=(x-1)+7$

30. $-(x+7)=-6x+8$

31. $\frac{2}{x}=7$

32. $\frac{3}{x}=\frac{4}{5}$

33. $\frac{3}{x}=\frac{x+8}{-5}$

34. Solve for a.

$ax+by=c$