

GOOD COUNSEL MATH DEPARTMENT

Summer Math Packet for Students entering

Geometry Honors Geometry

The problems in this packet are meant to help you review material that you have learned in previous math courses and will need to understand in order to be successful in Geometry. Try to complete all problems without a calculator. Show all of your work on a separate sheet of paper. ALL work should be completed to the best of your ability. **You will be tested on the material during the first two weeks of school.**

Have a great summer. We are looking forward to seeing you this fall.

Student Name _____

Previous Course Taken _____

*** If you are a freshman, and cannot solve most of the problems in this packet, then you need to contact Good Counsel's Math Department Chair or Mr. Ehrman as soon as possible to adjust your schedule for next year.

ATTENTION REGULAR GEOMETRY STUDENTS: You will need a workbook for class. Please order it over the summer. It is the Prentice Hall Geometry workbook.

Review of Algebra:

Show all work.

I. Determine the slope of the line through each pair of points. Simplify all answers. Leave in fraction form where appropriate.

1. (3, 4) and (2, 7)

2. (4, 6) and (-3, 6)

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

3. $(-\frac{1}{2}, -2)$ and $(-\frac{1}{2}, 1)$

4. (5, -1) and (5, 0)

II. Determine the equation for each line using the information given. Write your equations in slope intercept form. ($y = mx + b$)

5. slope of 3, passing through the point (4, 10).

6. containing the points of (0, 3) and (3, 0)

7. parallel to the line $y = -3x + 1$ and containing the point (-3, -5)

8. perpendicular to the line $y = -3x + 1$ and containing the point (-3, -5).

III. Solve the following equations, if possible.

9. $5x + 3 = -12$

10. $(2x - 1) - (3x + 5) = -10$

11. $3x - 6 - 8x = -2x + 9$

12. $4(x - 3) = 10x + 7 - 6x$

13. $\frac{-21}{x} = 7$

14. $\frac{1}{2}x - 12 = -2$

15. $\frac{x+2}{3} = \frac{8}{15}$

16. $(3x + 2) - 2(x + 4) = 7$

IV: Factor:

17. $5x - 10x^3$

18. $x^2 - 8x + 16$

19. $x^2 - 49$

20. $x^2 - 10x - 24$

V: Solve the following quadratic equations using factoring or the quadratic formula.

21. $x^2 + 3x = 0$

22. $x^2 - 5x - 24 = 0$

23. $3x^2 + x - 4 = 0$

24. $2x^2 - 6x = 8$

Quadratic Formula:

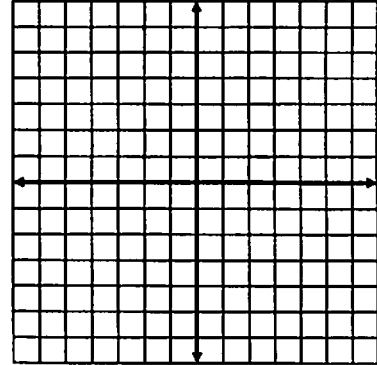
To solve a quadratic equation, it first must equal zero.

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

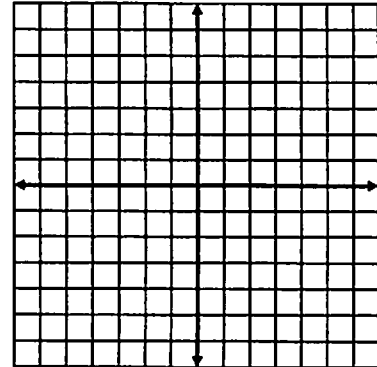
VI: Graphing.

Graph each of the following lines or parabolas.

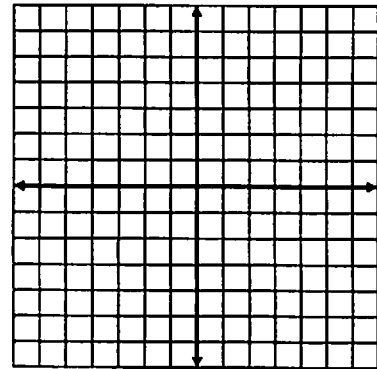
25. $y = -\frac{1}{2}x - 1$



26. $3x - 2y = 4$



27. $y = x^2 - 4x + 3$



Part VI: Simplify.

28. $\sqrt{64}$

29. $\sqrt{48}$

30. $3x(x - 3) - 4(x^2 - 2x + 1)$

31. $(3x^2y^4)^2$

$$32. \frac{4x^6y^9}{8x^2y}$$

$$33. (4x^3y^2)(2xy^8)$$

Part VII: Solve the system of equations algebraically.

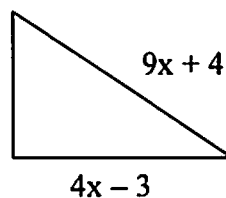
$$33. \begin{aligned} 2x + 3y &= 11 \\ y &= -2x + 1 \end{aligned}$$

$$34. \begin{aligned} 5x + 2y &= 10 \\ 12x - 8y &= 24 \end{aligned}$$

Preview to Geometry:

35. Determine the area and perimeter of a rectangle with a length of 4 and width of 3. (Reminder: Perimeter = sum of all sides. Area = length * width)

36. If the perimeter of the triangle is $P = 15x - 1$, find an expression for the third side of the triangle.



37. Area of a rectangle is equal to the length of the base multiplied by the height. ($A = bh$). Write an expression for the area of the rectangle.

