

Geometry Summer Packet

This packet is due on the first full day of class for Geometry. One week later, you will be given a test on the material found in this packet. You will have that one week to ask questions and get understanding of any topic in this packet for the teacher, the tutorial center and your peers.

REQUIRED MATERIALS FOR GEOMETRY:

- **3-ring binder with at least dividers USED ONLY FOR GEOMETRY**
- **Lined loose leaf paper**
- **Graph paper**
- **Scientific or Graphing Calculator (TI-83, TI-84 or TI-84+)**
- **Protractor**

A. Simplify each expression:

1. $5x - 2y + 18x + 7y$
2. $3(x+2) + 4(x-2)$
3. $2(3x-1) + 5$
4. $7x^2 - 2x - 8x - 15x^2$
5. $3t(t-5) + 6t^2$
6. $(3y+1)(-2) + y$
7. $6(x-1) - (x-4)$
8. the subtraction of $(-x^2 + 3x + 5)$ from $(4x^2 - 6x + 2)$
9. $(a^2 - b^2 + 5ab) + (-3b^2 - 2ab + a^2) =$
10. $(-2xy^4)(-3x^4y^6) =$
11. $x^2y^2(-3xy^3 + 4x^3y^2 - 5x^2y) =$

B. Solve for x in each equation:

1. $\frac{3}{4}x - 2 = -8$
2. $-4y - (5y + 6) = -7y + 3$
3. $4(1 - x) + 3x = -2(x + 1)$
4. $5(y - 2) = -2(12 - 9y) + y$
5. $4x + 2x + 24 = 180$
6. $(3x + 5) + (x - 1) = 180$
7. $5(x - 2) - 14x = -3x - (5 - 4x)$
8. $\frac{x}{8} = \frac{4}{9}$
9. $\frac{x}{3} = \frac{x+1}{4}$
10. $\frac{x}{32} = \frac{2}{x}$

C. Graph the line $y = \frac{2}{3}x - 2$ by finding any 2 points.

D. Find the x intercept and y intercept and use them to graph the line $3x - 5y = 15$

x intercept (,)

y intercept (,)

E. Solve each system for (x,y):

1. $x - y = -5$

$x + 2y = 4$

2. $x + 2y = 5$

$5x - y = 3$

3. $3x - 2y = 1$

$2x + 2y = 4$

F. Solve each quadratic equation:

1. $x^2 = 81$

2. $4x^2 + 100 = 0$

3. $2x^2 - 10x = 0$

4. $8x^2 - 4x - 4 = 0$

5. $x^2 + 4x = 21$

G. Simplify (no calculator results):

1. $\sqrt{75}$

2. $\sqrt{40}$

3. $3\sqrt{48}$

4. $\frac{1}{2}\sqrt{300}$

5. $\sqrt{50} + 3\sqrt{8} - 4\sqrt{98}$

6. $\sqrt[3]{3} - \sqrt[3]{27}$

H. Rewrite the equation of the line $4x - 2y = 12$ in slope intercept form

I. Rewrite the equation of the line $y = 3x + \frac{1}{2}$ in general form without fractions in the final answer.

J. Find the slope of the lines in each of the following:

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

1. the line that passes thru (1,3) and (3,-3)

2. the line that passes thru (3,-2) and (5,6)

K. Midpoint formula = $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

1. Find the midpoint between the 2 points in problem J part 1.
2. Find the midpoint between the 2 points in problem J part 2.

L. Distance formula = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

1. Find the distance between the 2 points in problem J part 1.
2. Find the distance between the 2 points in problem J part 2.

M. Solve the area /perimeter word problems. Draw a figure to assist you.
Answers are to be in sq units. Formulas are provided below:

1. Find the area and the perimeter of a triangle that has a base of 20 inches, with two sides of 10 inches each and an altitude (height) of 8 inches.
2. Find the approximate area of a circle with diameter of 10. (use $\pi = 3.14$)
3. Find the area of a circle that has a circumference of 12π . (use $\pi = 3.14$)
4. If the perimeter of a rectangle is 60 inches and the length is 20 inches, find the area of the rectangle.

$$\begin{aligned}\text{Area of rectangle} &= L \times W \\ \text{Area of circle} &= \pi r^2 \\ \text{Circumference of circle} &= 2\pi r \\ \text{Area of a triangle} &= \frac{1}{2} \text{ Base} \times \text{Height}\end{aligned}$$