

## Honors Geometry Summer Assignment 2022

Directions: Practice these problems to help you review your Algebra I skills. Plan to ask questions the first few days of school. PLEASE show all of your work in a neat and logical format.

Part I: Solve each equation.

1)  $3x + 2 = 23$

2)  $\frac{x}{2} - 6 = 9$

3)  $6n + 2 = 3n + 26$

4)  $3(x - 4) = 15$

5)  $\frac{1}{4}x + \frac{1}{2} = \frac{3}{4}x + \frac{1}{3}$

Part II: Write the equation of a line in slope-intercept form using the given information.

6)  $m = 4; b = -8$

7)  $A(-2, 9)$  and  $G(7, 0)$

8) A horizontal line that passes through the point  $(6, 2)$ .

9) A vertical line that passes through the point  $(-2, 7)$ .

Part III: Solve each system of equations algebraically, using substitution or elimination.

$$10) \begin{cases} 2x + y = -4 \\ 5x + 3y = -6 \end{cases}$$

$$11) \begin{cases} 6x + 2y = 10 \\ 3x + y = 5 \end{cases}$$

$$12) \begin{cases} x + 2y = 11 \\ x + 2y = 14 \end{cases}$$

Part IV: Simplify each polynomial.

$$13) (4x^2 - 11x + 10) + (5x - 31)$$

$$14) (-3x^3 + x - 11) - (4x^3 + x^2 - x)$$

$$15) 5x(3^2 - x + 3)$$

$$16) (x + 3y)(2x - y)$$

Part V: Factor completely.

$$17) 3x^4 - 12x^3$$

$$18) 6x^4 - 18x^3 + 15x^2$$

$$19) x^3 - 2x^2 - 4x + 8$$

$$20) x^3 + 3x^2 + 10x + 30$$

$$21) 3x^2 - 5x + 2$$

$$22) x^2 - 9x + 18$$

$$23) 4x^2 - 11x + 6$$

$$24) 25x^2 - 16$$

Part VI: Simplify. Leave answers in simplest radical form, i.e.,  $\sqrt{\quad}$ . Do not use decimal approximations.

25)  $\sqrt{100}$

26)  $-\sqrt{1}$

27)  $\sqrt{98}$

28)  $\sqrt{75}$

29)  $\sqrt{\frac{36}{81}}$

30)  $\frac{\sqrt{18}}{\sqrt{2}}$

31)  $\sqrt{\frac{7}{3}}$

32)  $\sqrt{\frac{8}{5}}$