

Rising Geometry Regents Summer Packet

Name: _____

Directions: Complete all problems. Show all work. This packet reviews important skills to help you prepare for next year.

Part 1: Algebra Review

1. Solve the equations.

a) $3x + 7 = 25$

b) $5x - 12 = 28$

c) $4(x - 3) = 20$

d) $2x + 9 = 3x - 5$

e) $6x - 8 = 2x + 24$

2. Solve the inequalities.

a) $4x + 5 > 21$

b) $3x - 7 \leq 14$

c) $5 - 2x < 13$

3. Evaluate.

a) $f(x) = 3x^2 - 2x + 1$ when $x = 2$

b) $g(x) = 5x - 8$ when $x = -3$

c) $h(x) = x^2 + 4x + 4$ when $x = 5$

Part 2: Linear Equations

4. Find the slope.

a) Through $(2,3)$ and $(6,11)$

b) Through $(-4,5)$ and $(2,-1)$

c) Through $(3,8)$ and $(3,-2)$

5. Write the equation of the line in slope-intercept form.

a) Slope = 2, y-intercept = -3

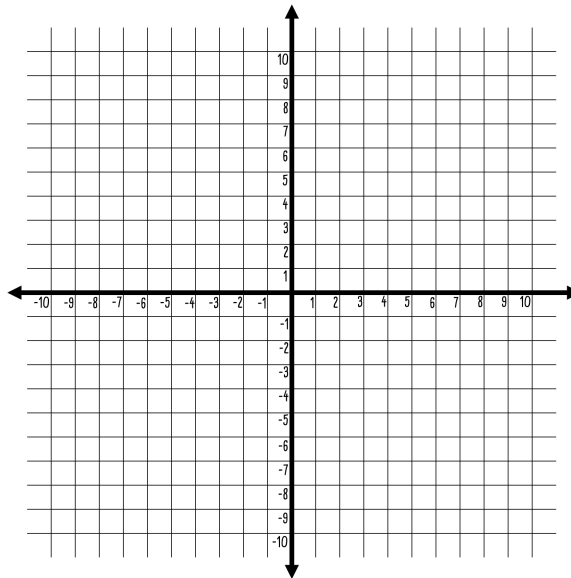
b) Through (1,4) with slope 3

6. Graph the following lines.

a) $y = 2x + 1$

b) $y = -x + 4$

c) $y = \frac{1}{2}x - 3$



Part 3: Exponents and Polynomials

7. Simplify.

a) $x^2 \cdot x^5$

b) $y^8 \div y^3$

c) $(2a^3)(3a^2)$

d) $(x^4)^2$

8. Expand.

a) $(x + 5)(x + 2)$

b) $(x - 3)(x + 7)$

c) $(2x + 1)(x - 4)$

9. Factor completely.

a) $x^2 + 7x + 12$

b) $x^2 - 9x + 20$

c) $x^2 - 25$

Part 4: Quadratics

10. Solve.

a) $x^2 = 49$

b) $x^2 - 16 = 0$

c) $x^2 + 5x + 6 = 0$

d) $x^2 - 7x + 12 = 0$

11. Identify the vertex.

a) $y = (x - 2)^2 + 5$

b) $y = (x + 4)^2 - 1$

c) $y = (x - 7)^2$

Part 5: Mixed Review

12.

A line passes through (2,3) and (6,11).

Find:

- a) The slope
- b) The equation of the line

13.

Factor completely:

$$x^2 - 11x + 24$$

14.

Solve:

$$x^2 - 10x + 21 = 0$$
