

Geometry Summer Work

Name:

This packet is to be completed without a calculator. Please do all work directly on the page.

Section 1: Simplifying and multiplying expressions

Simplify each expression.

1. $(5p^2 - 3) + (2p^2 - 3p^3)$

2. $(a^3 - 2a^2) - (3a^2 - 4a^3)$

3. $(-4k^4 + 14 + 3k^2) + (-3k^4 - 14k^2 - 8)$

4. $(8n - 3n^4 + 10n^2) - (3n^2 + 11n^4 - 7)$

Find each product

6. $2x(-2x - 3)$

7. $-4(x + 1)$

8. $(2n + 2)(6n + 1)$

9. $(3m - 1)(8m + 7)$

10. $(x - 4)^2$

11. $(x - 3)(x + 3)$

12. $(2k^2 + 1)^2$

13. $(3x + 7)(3x - 7)$

Section 2: Factoring trinomials

Factor each completely.

1. $b^2 + 8b + 7$

2. $n^2 - 11n + 10$

3. $m^2 + 2m - 24$

4. $x^2 - 4x + 24$

Section 3: Solving equations with one variable

1. $4x = 20$

2. $3 + x = -17$

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

4. $\frac{x}{11} = 4$

5. $2x - 8 = -32$

6. $3x + 4x = -14$

7. $-36 = 6(2 - 8x)$

8. $-(-2x + 2) = -14$

9. $-6(x - 7) + 6(x + 5) = 73$

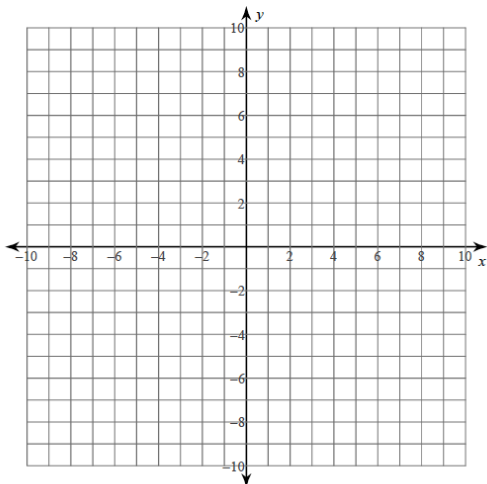
10. $6x - 2x + 8 = x + 5$

11. $4x + 5x + 15 = 5x + 7x$

Section 4: Points, slope, graphing lines

Plot each point

- 1) $J(5, 10)$ $I(1, 9)$ $H(6, -9)$
 $G(-6, 8)$ $F(9, 0)$ $E(-6, 0)$
 $D(-8, -4)$ $C(5, 0)$ $B(-1, -1)$
 $A(-8, -1)$



Find the midpoint of the line segment with the given endpoints.

2. $(-4, 4), (5, -1)$

3. $(2, -1), (-6, 0)$

4. $(3.1, -2.1), (-0.52, -0.6)$

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

5. $(5, 9), (-7, -7)$

6. $(8, 5), (-1, 3)$

Find the slope of the line through each pair of points.

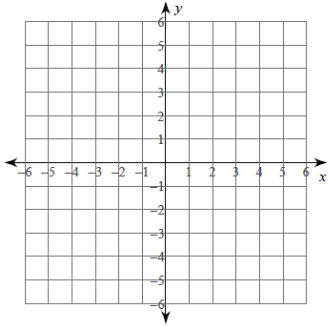
7. $(1, -19), (-2, -7)$

8. $(19, -2), (-11, 10)$

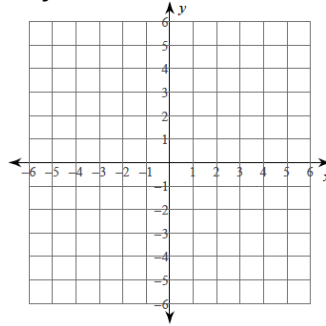
9. $(12, -18), (-15, -18)$

Sketch the graph of each line.

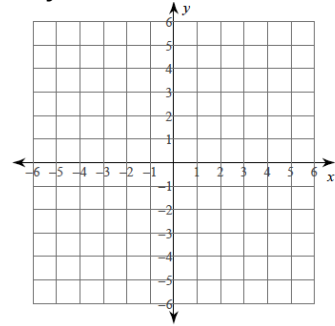
10. $x = 3$



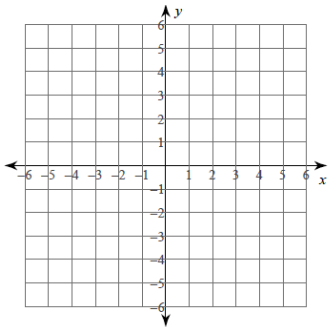
11. $y = -4$



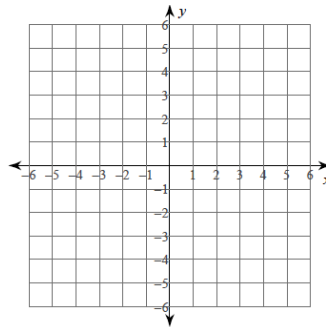
12. $y = -6x + 3$



13. $y = \frac{1}{4}x - 2$



14. $y = -\frac{1}{3}x + 3$



Section 5: Systems of equations (solving equations with two variables)
Solve each system by elimination.

1. $-4x - 2y = -12$
 $4x + 8y = -24$

2. $x - y = 11$
 $x + y = 19$

Solve each system by Substitution

$$\begin{aligned} 3. \quad & y = 2 \\ & 4x - 3y = 18 \end{aligned}$$

$$\begin{aligned} 4. \quad & y = 6x - 11 \\ & -2x - 3y = -7 \end{aligned}$$

Section 6: Square roots

Simplify. Leave all answers in simplest radical form.

$$1. \sqrt{216}$$

$$2. \sqrt{12}$$

$$3. 10\sqrt{96}$$

$$4. 2\sqrt{36}$$

$$5. -5\sqrt{6} - 2\sqrt{6}$$

$$6. -3\sqrt{24} - 3\sqrt{2} + 2\sqrt{2}$$

$$7. \sqrt{5} \cdot \sqrt{5}$$

$$8. \sqrt{10} \cdot \sqrt{2}$$

$$9. \sqrt{6} \cdot 2\sqrt{9}$$

$$10. 4\sqrt{3} \cdot 5\sqrt{6}$$