

# Geometry Standard 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: Solving equations with one variable

14.  $4x = 20$

15.  $3 + x = -17$

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

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

18.  $2x - 8 = -32$

19.  $3x + 4x = -14$

20.  $-36 = 6(2 - 8x)$

21.  $-(-2x + 2) = -14$

22.  $-6(x - 7) + 6(x + 5) = 73$

23.  $6x - 2x + 8 = x + 5$

24.  $4x + 5x + 15 = 5x + 7x$

## Section 4: Points, slope, graphing lines

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

**Midpoint Formula**

$$M = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

25.  $(-4, 4), (5, -1)$

26.  $(2, -1), (-6, 0)$

27.  $(3.1, -2.1), (-0.52, -0.6)$

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

### THE DISTANCE FORMULA

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

28.  $(5, 9), (-7, -7)$

29.  $(8, 5), (-1, 3)$

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

### THE SLOPE FORMULA

$$m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

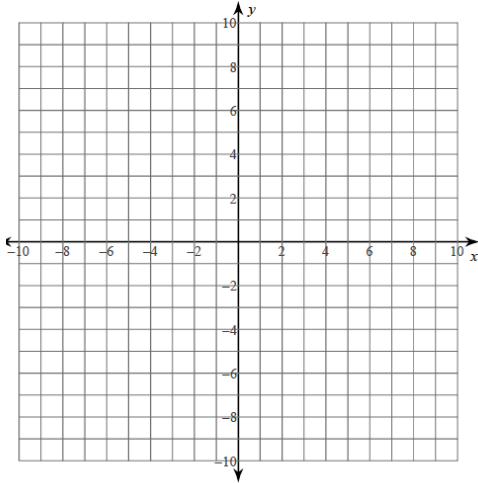
30.  $(1, -19), (-2, -7)$

31.  $(19, -2), (-11, 10)$

32.  $(12, -18), (-15, -18)$

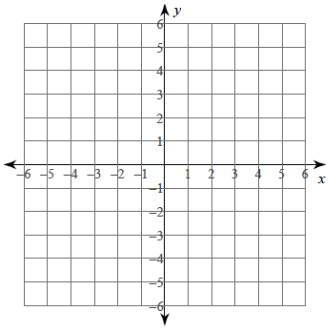
33. Plot each point

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

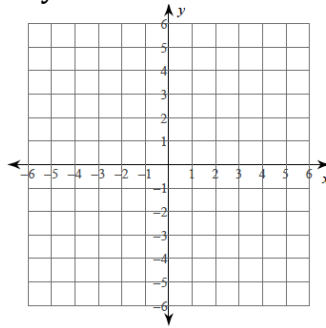


Sketch the graph of each line. Please plot at least 3 points and draw the line to the edge of your graph.

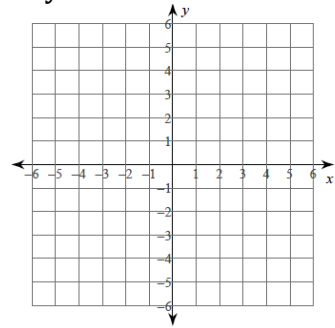
34.  $x = 3$



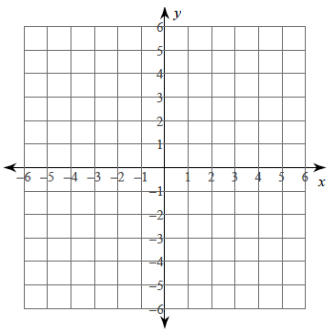
35.  $y = -4$



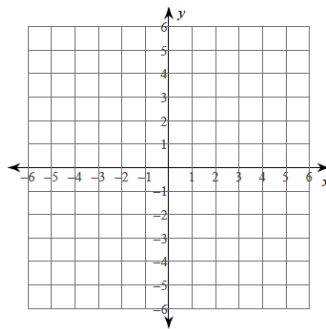
36.  $y = -6x + 3$



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



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



Section 6: Square roots

Simplify. Leave all answers in **simplest radical form**.

Good review video: <https://youtu.be/pC9uaPmPLjE>

39.  $\sqrt{216}$

40.  $\sqrt{12}$

41.  $10\sqrt{96}$

42.  $2\sqrt{36}$

43.  $-5\sqrt{6} - 2\sqrt{6}$

44.  $-3\sqrt{24} - 3\sqrt{2} + 2\sqrt{2}$

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

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

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

48.  $4\sqrt{3} \cdot 5\sqrt{6}$