

# Geometry

## Summer Review Packet

These problems represent a review of Algebra material and some basic Geometry concepts. It is due on the first day of school.

### DIRECTIONS:

- Complete the packet on separate paper.
- Show all work.
- All graphs must be done on graph paper.
- Do all problems **WITHOUT** the use of a calculator.
- Bring your work with you on the first day of class. It will be collected.

If you are having difficulty on a section of these problems, refer to the following resources:

- Your Algebra notebooks
- Khanacademy.com

Answers are included at the end of the packet for you to use to check your work.

Name: \_\_\_\_\_

Geometry: Summer Review Packet

**Factor the polynomial.**

1.  $2x^3 + 4x^2 + 8x$

2.  $40w^{11} + 16w^6$

3. Find the GCF of the terms of the polynomial.  
 $8x^6 + 32x^3$

**Simplify the product using FOIL.**

4.  $(3x - 7)(3x - 5)$

5.  $(4x + 3)(2x + 5)$

6.  $(6h - 5)(6h + 5)$

**Find the square.**

7.  $(2x - 6)^2$

8.  $(8m + 7)^2$

**Factor the expression.**

9.  $w^2 + 18w + 77$

10.  $d^2 + 10d + 9$

11.  $5x^2 - 80$

12. Simplify  $\sqrt{\frac{144}{49}}$ .

13. Simplify  $-\sqrt{2500}$ .

**Solve the equation using square roots.**

14.  $x^2 - 20 = -4$

**Solve the equation using the zero-product property.**

15.  $(2x + 2)(5x - 5) = 0$

16.  $-8r(10r - 1) = 0$

**Solve the equation by factoring.**

17.  $z^2 - 6z - 27 = 0$

18.  $3z^2 + 3z - 6 = 0$

19.  $15 = 8x^2 - 14x$

**Find the number of real number solutions for the equation.**

20.  $x^2 - 18 = 0$

**Simplify the radical expression. All variables represent positive numbers.**

21.  $-4\sqrt{160}$

22.  $\sqrt{144}$

23.  $-3\sqrt{180h^4}$

24.  $-2\sqrt{2p} \cdot 2\sqrt{22}$

25.  $\sqrt{\frac{10}{81}}$

26.  $\sqrt{\frac{80w^3}{9}}$

**Simplify the radical expression by rationalizing the denominator.**

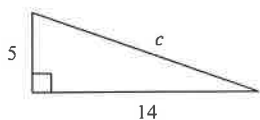
27.  $\frac{4}{\sqrt{21}}$

28.  $\frac{7\sqrt{100}}{\sqrt{500}}$

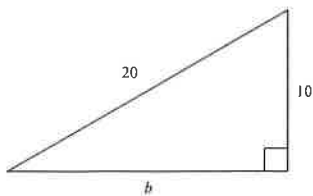
29. A square garden plot has an area of  $24 \text{ ft}^2$ .
- Find the length of each side in simplest radical form.
  - Calculate the length of each side to the nearest tenth of a foot.

**Find the length of the missing side. If necessary, round to the nearest tenth. (Hint: Use Pythagorean Theorem)**

30.



31.



**Determine whether the given lengths can be sides of a right triangle.**

32. 18 m, 24 m, 30 m

33. 7 cm, 40 cm, 41 c

**Which method(s) would you choose to solve the equation? Justify your reasoning.**

34.  $3x^2 - 27 = 0$

**Find the slope of the line given the following points.**

35. A(-3, -2), B(-1, 2)

36. C(-4, 0), D(0, -1)

37. **Find the equation of the line passing through the points J(-5, -4), K(0, -2).**

38. **Write the equation of a line that passes through the given point and is parallel to the graph of the given equation.**

$$(-5, -4), y = \frac{1}{2}x + 1$$

39. Write the equation of a line that passes through the given point and is perpendicular to the graph of the given equation.

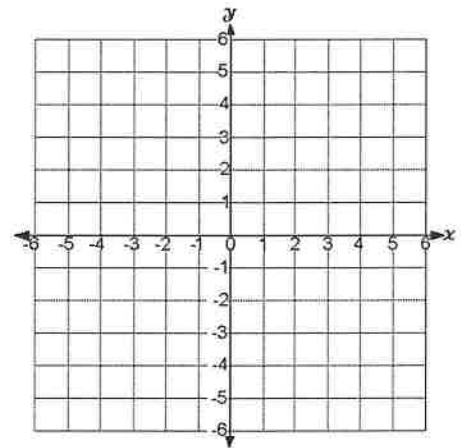
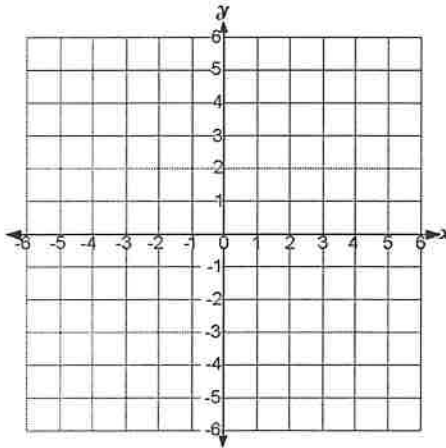
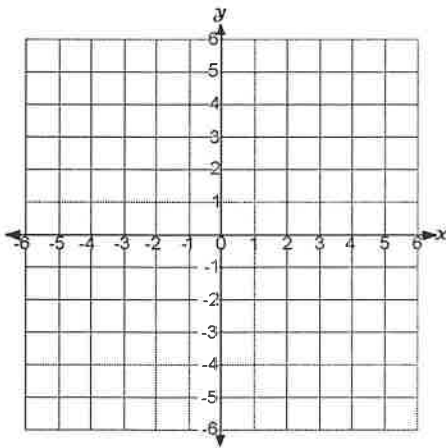
$$(-3, 1), y = -3x + 7$$

Identify the x-intercept and the y-intercept and graph.

40.  $y = 2x - 2$

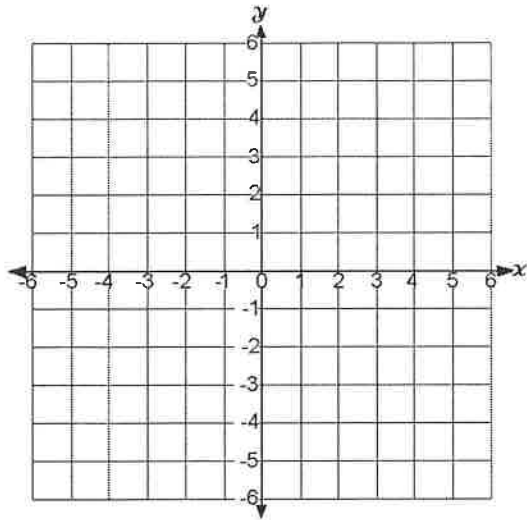
41.  $\frac{1}{2}x + y = 3$

42.  $\frac{-1}{2}y = x + 1$

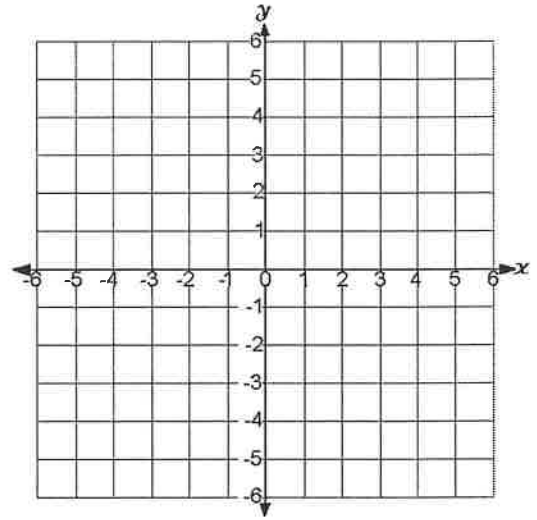


Graph the equation of the lines using slope and y-intercept.

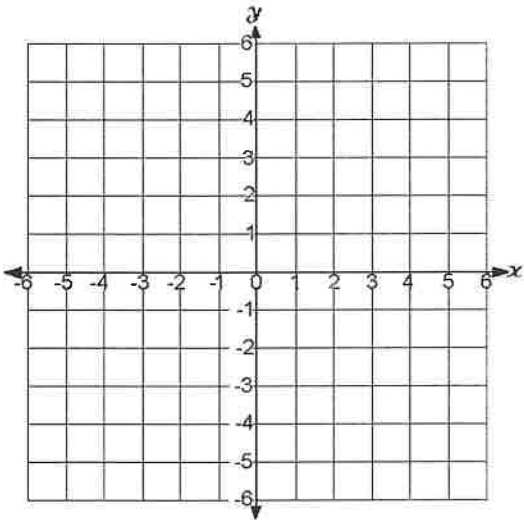
43.  $y = 3x - 2$



44.  $Y = \frac{-1}{2}x + 4$



45.  $Y = \frac{2}{3}x$



Name: \_\_\_\_\_

## Honors Geometry: Summer Review Packet

Due the first day of class!

Factor the polynomial.

- $2x^3 + 4x^2 + 8x$   
 $2x(x^2 - 2x - 4)$
- $40w^{11} + 16w^4$   
 $8w^6(5w^5 + 2)$
- Find the GCF of the terms of the polynomial.  
 $8x^4 + 32x^3$   $8x^3$

Simplify the product using FOIL.

- $(3x - 7)(3x - 5)$   
 $9x^2 - 36x + 35$
- $(4x + 3)(2x + 5)$   
 $8x^2 + 26x + 15$
- $(6h - 5)(6h + 5)$   
 $36h^2 - 25$

Find the square.

- $(2x - 6)^2$   
 $4x^2 - 24x + 36$
- $(8m - 7)^2$   
 $64m^2 + 112m + 49$

Factor the expression.

- $w^2 + 18w + 77$   
 $(w + 7)(w + 11)$
- $d^2 + 10d + 9$   
 $(d + 9)(d + 1)$
- $5x^2 - 80$   
 $5(x + 4)(x - 4)$
- Simplify  $\sqrt{\frac{144}{49}}$   $\frac{12}{7}$
- Simplify  $-\sqrt{2500}$   $-50$



Solve the equation using square roots.

14.  $x^2 - 20 = -4$   $x = \pm 4$

Solve the equation using the zero-product property.

15.  $(2x + 2)(5x - 5) = 0$

$x = -1$   $x = 1$

16.  $-8n(10n - 1) = 0$

$n = 0$   $n = \frac{1}{10}$

Solve the equation by factoring.

17.  $z^2 - 6z - 27 = 0$

$x = 9$   $x = -3$

18.  $3z^2 + 3z - 6 = 0$

$z = 2$   $z = -1$

19.  $15 = 8x^2 - 14x$

$x = \frac{5}{2}$   $x = -\frac{3}{4}$

Find the number of real number solutions for the equation.

20.  $x^2 - 18 = 0$

$x = \pm 3\sqrt{2}$

Simplify the radical expression. All variables represent positive numbers.

21.  $4\sqrt{160}$

$= 16\sqrt{10}$

22.  $\frac{\sqrt{144}}{12}$

$\frac{12}{12}$

23.  $-3\sqrt{180h^2}$

$= -18h^2\sqrt{5}$

24.  $-2\sqrt{25} \cdot 2\sqrt{22}$

$= -8\sqrt{110}$

25.  $\frac{\sqrt{10}}{\sqrt{81}} \cdot \frac{\sqrt{10}}{9}$

26.  $\sqrt{\frac{80w^3}{9}}$        $\frac{4w\sqrt{5w}}{3}$

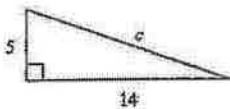
Simplify the radical expression by rationalizing the denominator.

27.  $\frac{4}{\sqrt{21}}$        $\frac{4\sqrt{21}}{21}$

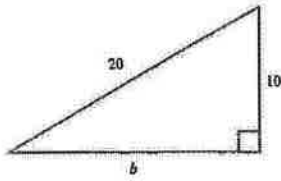
28.  $\frac{7\sqrt{100}}{\sqrt{500}}$        $\frac{7\sqrt{5}}{5}$

29. A square garden plot has an area of 24 ft<sup>2</sup>.  
 a. Find the length of each side in simplest radical form.  $2\sqrt{6}$  ft  
 b. Calculate the length of each side to the nearest tenth of a foot.  $4.9$  ft

Find the length of the missing side. If necessary, round to the nearest tenth. (Hint: Use Pythagorean Theorem)



30.  $c = 14.9$



31.  $b = 17.3$

Determine whether the given lengths can be sides of a right triangle.

32. 18 m, 24 m, 30 m *yes*

33. 7 cm, 40 cm, 41 cm *no*

Which method(s) would you choose to solve the equation? Justify your reasoning.

34.  $3x^2 - 27 = 0$

$x = -3$   $x = 3$

Find the slope of the line given the following points.

35. A(-3, -2), B(-1, 2)

$m = 2$

36. C(-4, 0), D(0, +1)

$m = -\frac{1}{4}$

37. Find the equation of the line passing through the points J(-5, -4), K(0, -2).

$y = \frac{2}{5}x - 2$

38. Write the equation of a line that passes through the given point and is parallel to the graph of the given equation.

(-5, +4),  $y = x + 1$

$y = x + 9$

39. Write the equation of a line that passes through the given point and is perpendicular to the graph of the given equation.

$$(-3, 1), y = -3x + 7$$

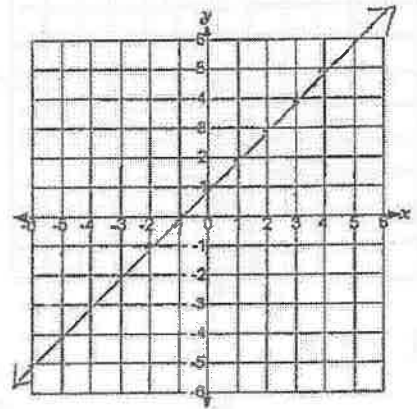
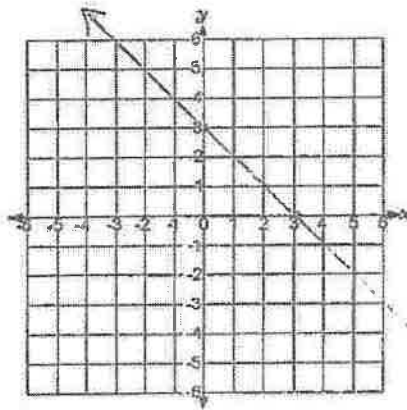
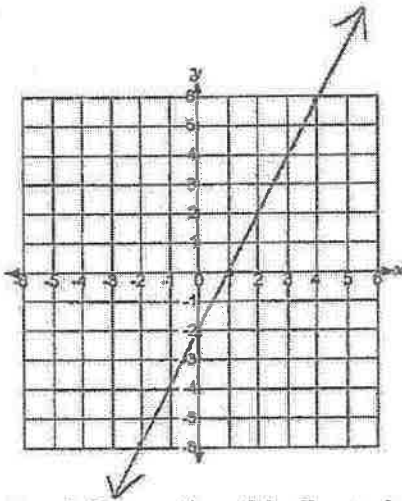
$$y = \frac{1}{3}x + 2$$

Identify the x-intercept and the y-intercept and graph.

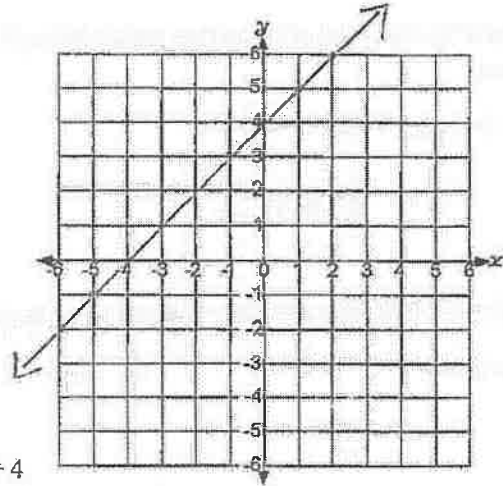
40.  $y = 2x - 2$

41.  $x + y = 3$

42.  $y = x + 1$

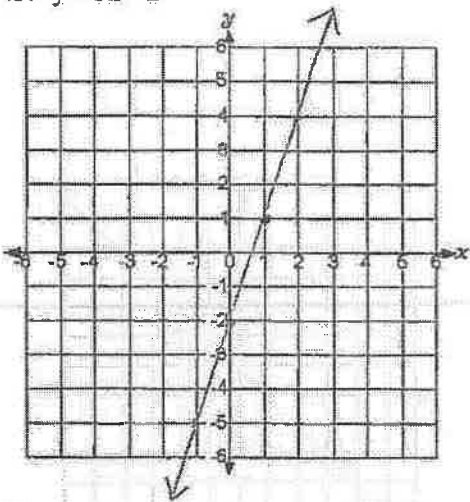


Graph the equation of the lines using slope and y-intercept.



44.  $Y = x + 4$

43.  $y = 3x - 2$



45.  $Y = x$

