

Show all work. Round to the nearest tenth and use the π key on the calculator when needed.

2020-21 Geometry Prerequisite Skills – Summer Work

This assignment is not required, however, we strongly urge you to complete it by the first day of school. You will be given a pre-test over your ability to solve problems like these. These are prerequisite skills that are necessary for Geometry.

Directions: Solve each problem on a separate sheet of paper. **SHOW ALL WORK.** Round to the nearest tenth and use the π key on the calculator when needed. Use graph paper for problems that require you to graph.

Part A. Combining Like Terms. Simplify.

1. $5x + 2y - 3x + 8y + 6$

2. $7x + 8x^2 - 5x + x^2 + 8x$

3. $6ab - 4ab + ab$

Part B. Solving equations. Solve for the variable.

4. $5x + 3x = 80$

5. $1 - x = 4x + 21$

6. $7n + 9 + 3n - 3 = 6n$

7. $-5y - 1\frac{1}{4} = 9$

8. $\frac{2}{3}x = 5\frac{1}{3}$

9. $\frac{1}{2}(4x - 8) - 3x - 6 = 90$

Part C. Slope

Directions: Plot the points on the coordinate plane and connect them with a line. Then find the slope of the line connecting the two points by doing rise over run and then confirm your answer by using the slope formula. Show ALL work.

10. (1, 2) and (6, 6)

11. (5, 6) and (5, -4)

12. (-3, 6) and (5, -4)

13. (6, -3) and (-2, -3)

Part D. Perimeter, Area and Circumference

Directions: For problems #14-18, calculate the perimeter(circumference) AND area of each figure. Remember to include the UNITS for each answer and show all work. Round answers to nearest tenth if needed. Use the pi key on the calculator. For #19-24, find the indicated measure.

14. A rectangle has a length of 10 inches and a width of 4 inches

15. A square has a side length of 6.25 centimeters

16. A right triangle has a base of 16 meters and a height of 12 meters (hint: you will need to use the pythagorean theorem to find the third side.)

17. A circle with a radius of 4.5 feet.

18. A circle with a diameter of 15 inches.

19. The area of a 10 cm wide rectangle is 176 cm. Find the length.

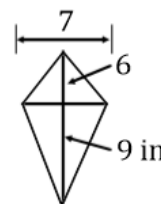
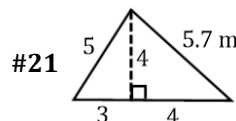
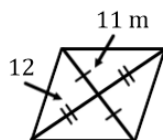
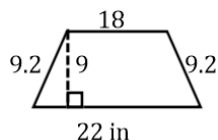
20. If the area of a circle is 100π cm², find the diameter.

21. Find the area of the triangle at the right.

22. Find the area of the trapezoid.

23. Find the area of the rhombus.

24. Find the area of the kite.



Part E. Midpoint and Distance Formula in Coordinate Plane

25. Directions: Find the midpoint of line segment AB. A(2, 7) and B(-4, -6).

26. Plot the points on graph paper and connect the points in alphabetical order given A(0, 4), B(4, 0), C(3, -4), and D(-3, -4).

27. a. Use the distance formula to find the length of segment AB.
b. Use the distance formula to find the length of segment BC.
c. Use the distance formula to find the length of segment CD.
d. Use the distance formula to find the length of segment DA

28. Find the Perimeter of ABCD.

Show all work. Round to the nearest tenth and use the π key on the calculator when needed.

Part F. Names of Polygons

29. Write the name of each polygon based on its number of sides.

Name of Polygon	Number of Sides
Triangle	3
	4
	5
	6
	7

Name of Polygon	Number of Sides
	8
	9
	10
	12

Part G. Systems of Equations

Solve each equation by substitution. Answers should be written as an ordered pair.

30. $2x + 2y = 38$
 $y = x + 3$

31. $y - 2x = 3$
 $3x - 2y = 5$

Solve by elimination. Answers should be written as an ordered pair.

32. $2x + 3y = 9$
 $x + 5y = 8$

33. $6x - 3y = 15$
 $7x + 4y = 10$

Part H. Quadratic Equations

Solve by factoring.

34. $x^2 + 4x - 32 = 0$

Solve by completing the square.

35. $p^2 - 4p = 21$

Solve by using the quadratic formula.

36. $2x^2 - 3x - 5 = 0$

37. $-3x^2 - 11x + 4 = 0$

Solve by square roots.

38. $3x^2 = 75$

Part I: Graphing Linear Equations and Writing Linear Equations in Slope-Intercept Form.

Directions: For #39-41, write the equation of the line in slope-intercept form given each set of information.

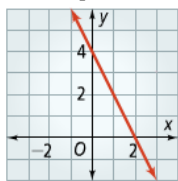
39. Slope = $-\frac{1}{2}$ and the y-intercept is 3

40. $m = 3$ and $b = -2$

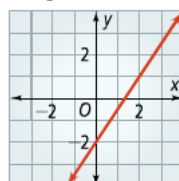
41. Passes through $(-2, 4)$ and $(3, -1)$.

42. Write the equation in slope-intercept form of each line.

a)



b)



43. Graph $y = 3$

44. Graph $x = -2$

45. Graph $3x - 4y = -20$

46. Graph $-2x + 4y = 18$

Part J. Simplifying Radicals.

Simplify. Write answers in simplest radical form.

47. $\sqrt{80}$

48. $2\sqrt{75}$

49. $\sqrt{36} \cdot \sqrt{81}$

50. $\sqrt{12} \cdot \sqrt{20}$

51. $\sqrt{\frac{7}{3}}$

52. $\frac{4\sqrt{5}}{\sqrt{2}}$

53. $2\sqrt{3} + 5\sqrt{3}$

54. $3\sqrt{2} + 4\sqrt{3} + 5\sqrt{2} - 6\sqrt{3}$