

Summer Review Packet for students entering 8th Grade Geometry

Summer packet is due on the first day of school.

It is NOT recommended to complete this packet immediately following school dismissal in June nor the night before the packet is due. Student learning is most effective if packet is completed during the months of July and August. Students will be tested on the material in this packet within the first few weeks of school once the teacher has discussed the packet in the classroom.

Define the following and **draw** an example of each.

Term	Definition	Diagram
Point		
Line		
Plane		
Segment		
Ray		
Perpendicular Lines		
Transversal		
Angle		
Vertex		

Define the following and **draw** an example of each.

Term	Definition	Diagram
Right Angle		
Acute Angle		
Obtuse Angle		
Straight Angle		
Triangle		
Right Triangle		
Acute Triangle		
Obtuse Triangle		
Scalene Triangle		

Define the following and **draw** an example of each.

Term	Definition	Diagram
Equilateral Triangle		
Equiangular Triangle		
Isosceles Triangle		
Triangle Sum Theorem		
Complementary Angles		
Supplementary Angles		
Vertical Angles		
Congruent Angles		
Congruent Sides		

Define the following and **draw** an example of each.

Term	Definition	Diagram
Congruent Figures		
Similar Figures		
Polygon		
Regular Polygon		
Quadrilateral		
Parallelogram		
Rectangle		
Square		
Rhombus		

Define the following and **draw** an example of each.

Term	Definition	Diagram
Trapezoid		
Pentagon		
Hexagon		
Heptagon		
Octagon		
Circle		
Center of a circle		
Diameter		
Radius		

Define the following and **draw** an example of each.

Term	Definition	Diagram
Chord		
Central Angle		
Arc		
Prism		
Pyramid		
Perimeter		
Circumference		
Area		

What is the sum of the interior angles of the following figures?

Figure	Sum of Interior Angles
Triangle	
Rectangle	
Square	
Parallelogram	

Solve for x .

1. $4x + 23 = 9x - 7$

2. $5x + 2(180 - x) = 300$

3. $2(x + 5) = 3(x - 2)$

Simplify.

4. $\sqrt{121}$

5. $\sqrt{24}$

6. $7\sqrt{300}$

7. $4\sqrt{2} + \sqrt{2}$

8. $8\sqrt{3} - 4\sqrt{3}$

9. $2\sqrt{3} \cdot \sqrt{32}$

10. $\sqrt{7}(3\sqrt{2} + \sqrt{16})$

11. $\sqrt{\frac{36}{225}}$

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

13. $(3\sqrt{5})^2$

Simplify. Use positive exponents.

14. $y^3 \cdot y^5$

15. $(x^3)^8$

16. $(-6)^3$

17. $\frac{m^{10}}{m^4}$

18. $\frac{32x^3y^4z^9}{48x^{18}y^4z^2}$

Solve the linear system by using the substitution method.

19. $y = 2x + 5$

$3x - y = 4$

20. $x - 7y = 13$

$3x - 5y = 23$

21. $6x + 2y = 38$

$2x - 5y = -10$

Solve the linear system by using the elimination method.

22. $5x - y = 20$

$3x + y = 12$

23. $9x - 2y = 50$

$6x - 2y = 32$

24. $19 = 5x + 2y$

$1 = 3x - 4y$

25. $3x + 7y = 6$

$2x + 9y = 4$

Perform the given operation.

26. $(x^4 + 6x^2 + 7) + (2x^4 - 3x^2 + 1)$

27. $(7n^3 + 2n^2 - n - 4) - (4n^3 - 3n^2 + 8)$

Find the product.

28. $(x + 3)(2x + 3)$

29. $(3x - 1)(5x + 1)$

30. $(4x - 7)(5x - 2)$

31. $(5x + 2)(4x^2 + 8x - 7)$

32. $(3x^2 + x - 5)(9x - 2)$

Factor the expression.

33. $x^2 + 13x + 30$

34. $a^2 - 6a - 16$

35. $3x^2 - 8x + 4$

Solve the equation by factoring.

36. $y^2 + 4y - 32 = 0$

37. $2x^2 - x - 1 = 0$

38. $4x^2 + 44x + 121 = 0$

Find the missing length of the right triangle using the Pythagorean Theorem $a^2 + b^2 = c^2$. Remember that a and b are the lengths of the legs and c is the length of the hypotenuse. In questions #42-44, find the unknown lengths of the right triangle.

39. $a = 3, b = 4$

40. $a = 5, c = 10$

41. $a = x, b = 1, c = \sqrt{2x}$

42. $a = x, b = x + 6, c = 2\sqrt{17}$

43. $a = x, b = 2x - 1, c = 2x + 1$

Simplify the following fractions.

44. $\frac{5bc^2}{25b^3c}$

45. $\frac{x+2}{3x+6}$

46. $\frac{9x-6y}{3}$

47. $\frac{a^2+8a+16}{a^2-16}$

Solve the proportion.

48. $\frac{5}{3x} = \frac{1}{15}$

49. $\frac{x-2}{4} = \frac{x+10}{10}$

50. $\frac{9-x}{x+4} = \frac{5}{2x}$