Honors Accelerated Geometry Packet

Summer

Name_________________________________

Pledge on the last page of the packet.

Instructions:

• Please show work where indicated. DO NOT use scratch paper.

• Copy all problems except # 74 – 78 where you must draw a diagram.

• Please work all problems on loose leaf paper with a # 2 pencil. Do not use ink.

• DO NOT use a calculator.

• Write neatly.

• Follow all directions to each set of problems. There should be no decimal answers unless the problem has decimals in it.

• This work is independent work. However, you may enlist the help of a tutor on concepts, but not specific problems in this packet. Having someone help you with the specific problems in this packet will be considered an Honor Council violation.

• You will submit this packet to your geometry teacher on the first day of class.

• You will have a test on this material after the first week of school.
Solve each equation.

1. \(2k - 1 = k - 5 + 3k\)
2. \(\frac{2}{5} (x - 2) = x + 4\)
3. \(\frac{1}{4}y - \frac{2}{3} = -4\)

Solve the equation for the indicated variable.

4. \(ax + by = c\) for \(y\)
5. \(5cy - d = 4d - cy\) for \(y\)

Graph each equation in a coordinate plane.

6. \(3x - 2y - 8 = 0\)
7. \(y - 2 = x - y + 2\)

Find the value of \(k\) so that point \(P\) lies on the line \(L\).

8. \(P (2,1); L: 3x + ky = 8\)
9. \(P (2,3); L: kx - 2y + k = 0\)

Find the slope of the line containing the given points. If the line has no slope, write "vertical."

10. \((-5, -2), (5, -2)\)
11. \((6, -5), (-4, 3)\)
12. \((3, -5), (3, 7)\)

Find the slope of each line.

13. \(4x - 3y = 3\)
14. \(\frac{x}{-1} - \frac{1}{2}y = 1\)

Find an equation in standard form for each line described.

15. Passing through the points \((1, 4)\) and \((-3, 4)\).
16. Passing through the points \((4, -5)\) and \((1, -4)\).
17. Having \(x\)-intercept 3, and \(y\)-intercept 4.
18. Through \(P (-2, 1)\) and parallel to the line containing \((1, 4), (2, 3)\).
19. Through \(P (5, -2)\) and perpendicular to the line \(2x - 3y = 6\).

Solve each system of equations by elimination (linear combination) or substitution.

20. \(3x + 3y = 6\)
\(5x - 6y = 15\)
21. \(2p - 5q = 14\)
\(p + \frac{3}{2}q = 5\)

An isosceles triangle has 2 equal angles (base angles) and a third angle (vertex angle). Draw a diagram, write and solve an equation for the following.

22. Find the measures of the angles of an isosceles triangle if the measure of the vertex angle is \(40^\circ\) less than the sum of the measures of the base angles.
Simplify. Assume that variable exponents represent positive integers.

23. \((-t^4)^3\)  
24. \((-t^3)^4\)  
25. \((x^2y)(xy^3)^2\)  
26. \((2x - 7)^2\)

Multiply. Assume that variable exponents represent positive integers.

27. \((5x - 2y)(5x + 2y)\)  
28. \(xy(x - y)^2\)

Factor each polynomial.

29. \(t^2 + 18t + 81\)  
30. \(16k^2 - 1\)  
31. \(12x^2 + 11x - 15\)  
32. \(18h^2 - 27h - 5\)  
33. \(9x^2 - 3x\)

Solve each equation by factoring.

35. \(4z^2 + z - 14 = 0\)  
36. \(6x^2 - 19x + 3 = 0\)  
37. \(a^3 - a = 0\)  
38. \(m(3m - 8)(3m + 1) = 0\)

Simplify.

39. \(\frac{5}{12} + \frac{5}{18} - \frac{5}{36}\)  
40. \(\frac{1}{x^2} + \frac{1}{xy} + \frac{1}{4y^2}\)  
41. \(\frac{3x}{4} - \frac{x - 1}{8}\)  
42. \(\frac{v}{u + v} + \frac{u}{v - u} + 1\)

Solve. If the equation has no solution, write "no solution."

43. \(\frac{y^2}{4} - \frac{3y}{2} + 2 = 0\)  
44. \(\frac{5u}{2} - 3 = -2\)  
45. \((2x + 3)^2 = 100\)  
46. \(\frac{x^2}{2} - \frac{x}{4} = 2\)

47. \(x^2 - 6 = 0\)  
48. \(2(6r - 1)^2 = 32\)  
49. \(5\sqrt{32} = 3\)  
50. \(7 + 3|2m + 1| = 13\)

Simplify.

51. \(\sqrt[5]{\frac{9}{5}}\)  
52. \(\frac{270}{\sqrt{6}}\)  
53. \(\sqrt{30} \cdot \sqrt{42}\)  
54. \(3 \sqrt{\frac{2}{12}}\)

55. \(\frac{1}{5} \sqrt{\frac{9 \cdot 1}{2 \cdot \sqrt{3}}^2}\)  
56. \(\sqrt{45} - \sqrt{20}\)  
57. \(\frac{27}{\sqrt{5}} - \frac{3}{\sqrt{5}}\)  
58. \(2\sqrt{3}(\sqrt{48} - 5\sqrt{12})\)

59. \(\frac{4}{2 - \sqrt{3}}\)  
60. \(\frac{\sqrt{5} + 1}{\sqrt{5} - 2}\)  
61. \((\sqrt{11} - \sqrt{7})(\sqrt{11} + \sqrt{7})\)

Solve each equation. If an equation has no real roots, say so.

62. \(\sqrt{4x - 3} = 5\)  
63. \(\sqrt{2n + 3} = n\)

Solve by completing the square.  
Solve by the quadratic formula.

64. \(x^2 + 6x = 5\)  
65. \(3x^2 - 5x = 4\)
Find the distance between each pair of points. Simplify all irrational distances.

66. \((8, -6), (5, 1)\)  
67. \((2, 2), \left(\frac{1}{3}, -2\right)\)

Find the midpoint of \(\overline{AB}\) with the given endpoints.

68. \(A (5, -2) B (7, 1)\)  
69. \((4, 0), \left(1, \frac{1}{2}\right)\)

Find the coordinates of \(Q\), given that \(M\) is the midpoint of \(\overline{PQ}\).

70. \(P (6, -2), M(0, 5)\)

Find the ratio of \(x\) to \(y\) determined by each equation.

71. \(5x = 9y\)  
72. \(\frac{1}{2} x = 3y\)  
73. \(4(x + y) = 8(x - y)\)

Solve each problem. Simplify irrational solutions. Put the given information on a diagram that you draw.

74. Each side of a square is 4 cm long. When each side is increased by \(x\) cm, the area is doubled. Find the value of \(x\).

75. The area of a square is 48 cm\(^2\). Find the length of the diagonal.

76. The diagonal of a rectangle is \(10\sqrt{2}\) and the width of the rectangle is 8. Find the area and the perimeter of the rectangle.

77. The diagonal of a square is 14. Find the area and perimeter.

78. Find the area of an equilateral triangle with perimeter 36.
Please staple this page to the top of your work pages and turn in to your H. Acc. Geometry teacher on the first day of class.

H. Acc. Geo. Per ________       Name____________________________________________

Instructions: Answer the following questions by checking each box.

☐ I completed all work on loose leaf paper with a # 2 pencil.

☐ I showed work where indicated.

☐ I did not use scratch paper.

☐ I copied all the problems.

☐ I drew diagrams for # 74 – 78 that contained the given information.

☐ I did NOT use a calculator.

☐ My handwriting is neat and legible.

☐ I followed all directions for each set of problems.

☐ I did not use decimal answers unless the problem had decimals in it.

☐ I completed the problems without help.

☐ I received help with particular concepts from ___________________________

________________________________________________________________________

Pledge__________________________________________________________