

Name _____ Date _____

Geometry H – Donovan

Summer Assignment 2023 – 2024

Order of Topics:

- A. Simplifying Expressions
- B. Evaluating Expressions
- C. Factoring
- D. Solving Equations & Inequalities
- E. Systems of Equations
- F. Solving Literal Equations
- G. Lines
- H. Radicals (*Calculator Allowed*)
- I. Slope, Distance, Midpoint (*Calculator Allowed*)
- J. The Pythagorean Theorem (*Calculator Allowed*)
- K. Perimeter, Circumference, Area, Volume (*Calculator Allowed*)

A calculator should only be used on topics (above) OR individual problems in the packet that state “Calculator Allowed”.

You are responsible for knowing and understanding all of the topics in this packet (they are all from Algebra I or before). In September, we will have two days, as a class, to go over any topics you are having trouble with (so 96 minutes of class time review) and then you will have a two-day test on this content that will count as your first test grade in marking period 1. I will send out the answer key with all the work included by the beginning of August so you can review it yourself and come in, ready with questions.

You may need to Google or watch videos relating to the following topics. You have learned everything in this packet, but of course, may need a refresher! All of this will be expected to be known coming into Honors Geometry.

Round or truncate every answer to 3 decimal places.

	Exact Answer	Approximate Answer
Find the circumference of a circle with a radius of 4 cm.	$C = 8\pi$ cm	$C = 25.133$ cm
Simplify $\sqrt{40}$	$2\sqrt{10}$	6.325

A. Simplifying Expressions

Simplify.

1. $\frac{25+5^2+5}{7-12\div 4+2}$

2. $10 - 2 \cdot 3^3 + 13$

3. $\frac{(3-7)^2+11}{|-2|+|-1|}$

4. $-2(x - 3y) + 2(-x + 9y)$

5. $12 - (x - 5) + x$

B. Evaluating Expressions

Evaluate.

6. $w^2 + 2xy$ for $x = -3$, $w = -2$, and $y = 1$

7. $|a - 4b|$ for $a = 7$ and $b = 2$

8. $\frac{7c^2+5}{4a-b}$ for $a = 1$, $b = -5$, and $c = -4$

9. $4x^2 + 9x - 5$ for $x = \frac{3}{4}$

10. $\frac{12b-2^c}{\sqrt[3]{a}}$ for $a = 125$, $b = -2$, and $c = 3$

C. Factoring

Factor completely.

11. $8x^5 - 32x^3$

12. $n^2 + 2n + 3mn + 6m$

13. $x^2 + 7x - 60$

14. $\frac{1}{4}x^2 - 25y^2$

15. $2x^2 + 3x - 9$

$$16. x^2y^4 - x^6$$

$$17. 4x^3 + 9x^2 - 36x - 81$$

$$18. 1 - 100x^2$$

$$19. 4n^2 - 15n - 25$$

$$20. 1 - 8u + 16u^2$$

$$21. 8n^2 - 18$$

$$22. x^3 - x^2 + x - 1$$

D. Solving Equations & Inequalities

Solve the following equations and inequalities. For the inequalities, graph your solution and write it in interval notation.

$$23. \frac{2}{5}x - 3 = -17$$

$$24. \frac{2}{3}x + \frac{1}{2}x = \frac{3}{4}$$

$$25. 3w - (7w + 12) = 2(w - 3)$$

$$26. \frac{y+7}{y} = \frac{2}{3}$$

$$27. \frac{6+x}{2} \cdot 10 = 70$$

$$28. 2(x - 8) + 7 = 5(x + 2) - 3x - 19$$

$$29. \frac{x}{3} + \frac{3}{4} = \frac{5x}{6} - 1$$

$$30. \frac{4x}{3} + 2(3 - x) = 5$$

$$31. 2m^2 - 7m - 13 = -10$$

$$32. 25x^2 = 30x + 11$$

$$33. x^2 + 16 = 0$$

$$34. (x - 3)(8x + 5) = 0$$

$$35. x^2 + 7x = 8$$

$$36. 2x^2 - 14x + 40 = x^2 - 9$$

$$37. 3x^2 - 11x + 10 = 0$$

$$38. 2x^3 - 3x^2 + x = 0$$

$$39. -4|2x + 6| = -32$$

$$40. 3x^2 + 7 = 0$$

$$41. x^2 = 8$$

$$42. 3p^2 - 2p - 5 = 0$$

$$43. \frac{x}{-2} + 11 \leq 15$$

$$44. 9 > -\frac{5}{8}x - 1$$

$$45. 18 + 2x > 4$$

$$46. 2(x + 3) \geq 4(x - 1)$$

$$47. 3(2x - 1) - 11x \leq -3x + 5$$

E. Systems of Equations

Solve each system of equations.

$$48. \begin{cases} -2x + 5y = 26 \\ 3x - 2y = 5 \end{cases}$$

$$49. \begin{cases} 2x + 4y = 2 \\ x = y + 7 \end{cases}$$

$$50. \begin{cases} 2x + y = -3 \\ -6x - 3y = -2 \end{cases}$$

$$51. \begin{cases} 3x - 2y = 5 \\ \frac{1}{2}y - 1 = -6x \end{cases}$$

$$52. \begin{cases} -2x + 15y = -32 \\ 7x - 5y = 17 \end{cases}$$

F. Solving Literal Equations

Solve each literal equation.

$$53. q = p(r + s), \text{ for } p$$

$$54. \frac{df+10}{6} = g, \text{ for } f$$

$$55. A = 4\pi r^2, \text{ for } r$$

56. $A = p(1 + rt)$, for t

57. $A = 2\pi r^2 + 2\pi rh$, for π

58. $\frac{12ds}{w} = CD$, for w

59. $\frac{2C}{A} + \frac{1}{B} = 2$, for C

60. $L = \frac{1}{3}(act + a)$

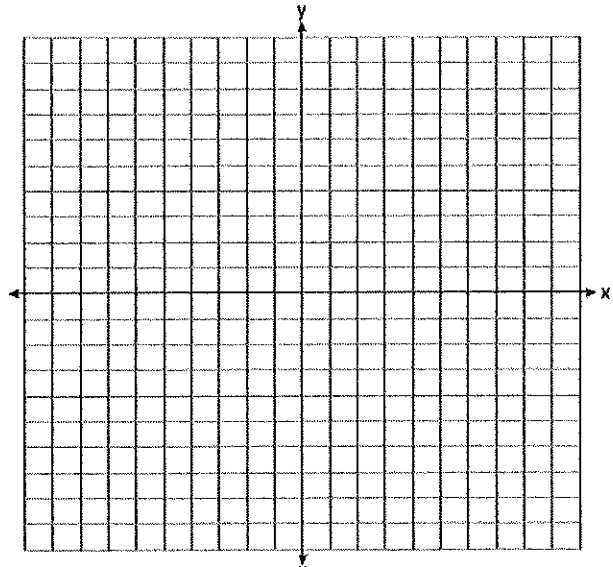
$$61. x^2 - y^2 = 0$$

$$62. \frac{2a+1}{b} + \frac{1}{c} = \frac{1}{3}$$

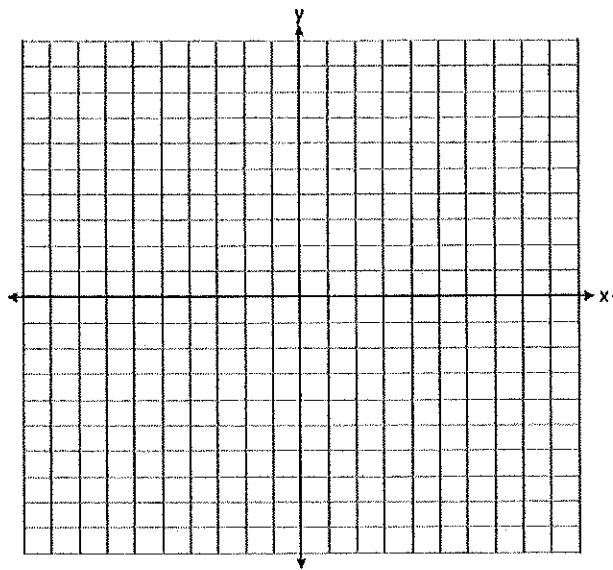
G. Lines

Graph the following lines.

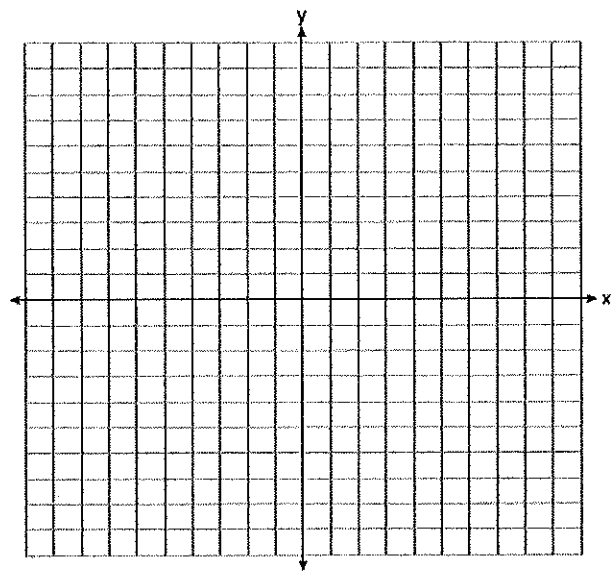
$$63. y = \frac{2}{3}x - 5$$



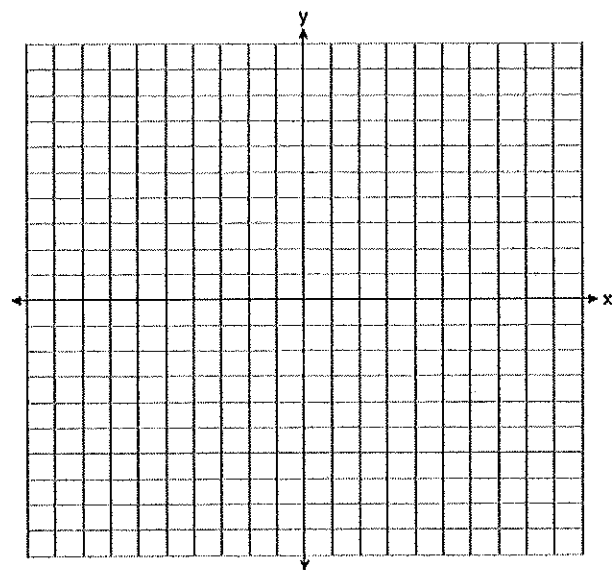
$$64. 3x - 8y = -24$$



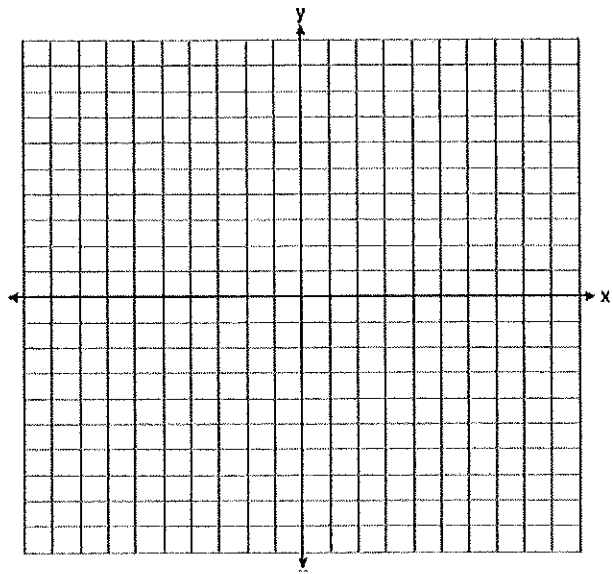
$$65. y - 4 = -2(x + 4)$$



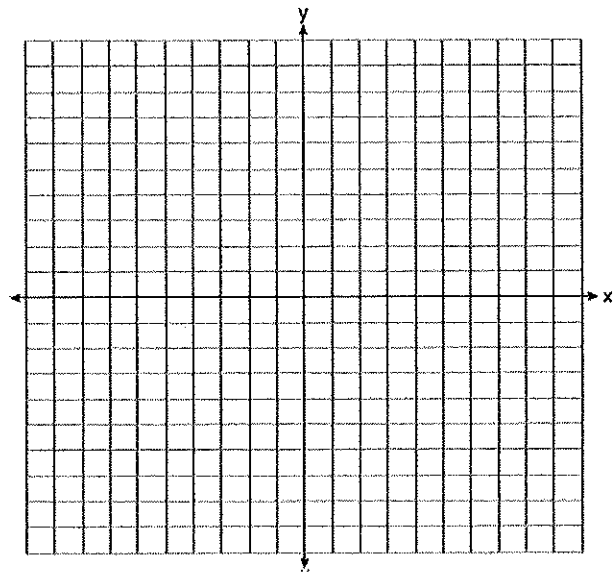
$$66. x = -5$$



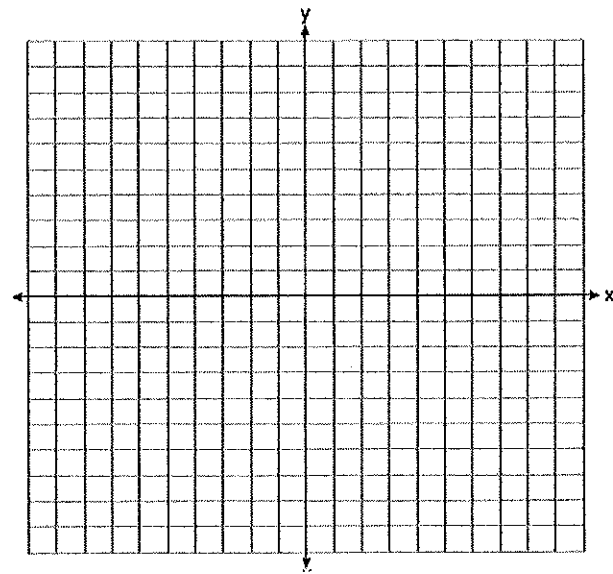
67. $y = 0$



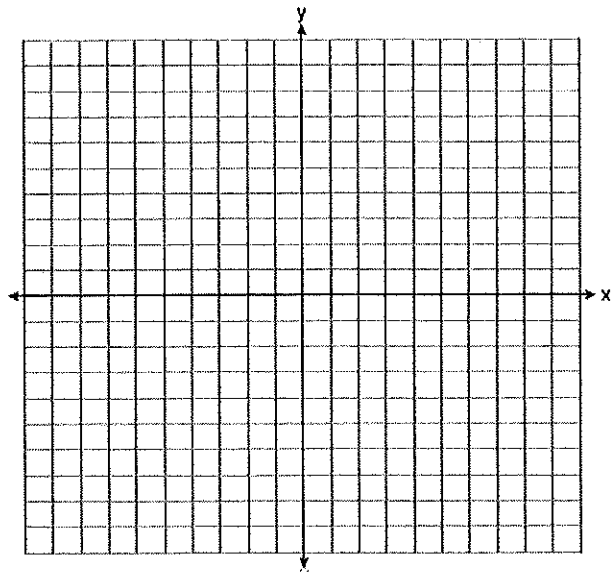
68. $y = -x$



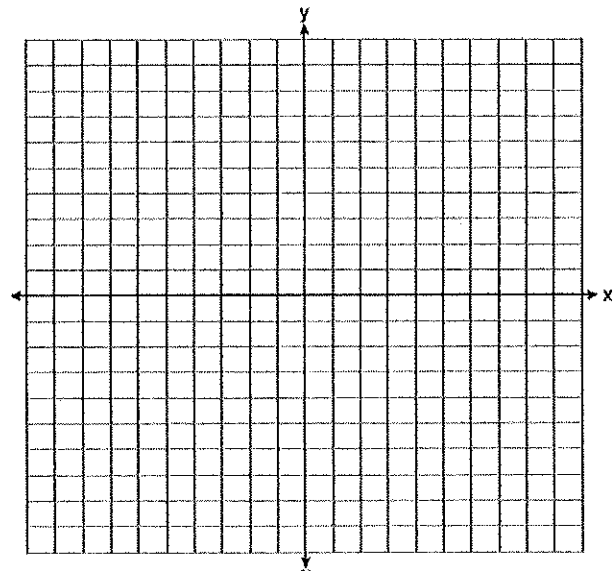
69. $\frac{1}{2}y = 2x - 1$



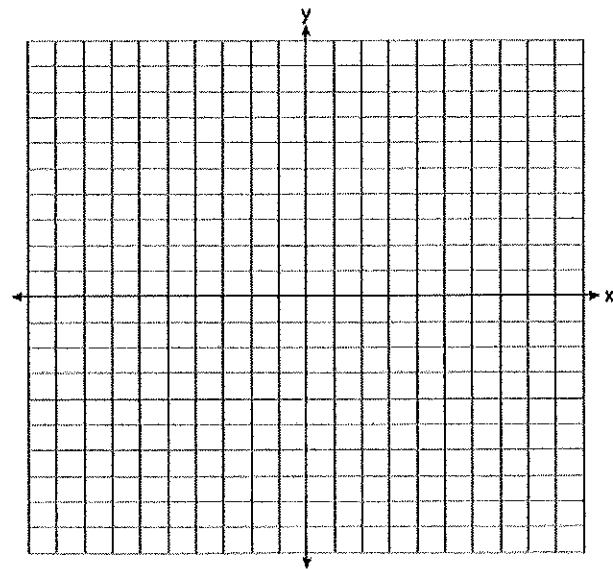
$$70. 3x = -5y$$



$$71. y = \frac{1}{6}x + \frac{1}{2}$$



$$72. -\frac{2}{3}x - \frac{1}{4}y = \frac{5}{6}$$



73. Find the slope through the set of points $(2, -1)$ and $(-3, -5)$.

74. Find the slope through the set of points $(-11, 7)$ and $(-11, 2)$.

75. Write an equation of the line in slope-intercept form perpendicular to $6x - 4y = 12$ that passes through the point $(7, -5)$.

76. Write an equation of the line in standard form that has a slope of 7 and goes through $(2, -3)$.

77. Write an equation of the line in slope-intercept form that goes through the points $(2, -7)$ and $(-4, 9)$.

78. Write an equation of the line in point-slope form that is parallel to $y = 5x - 4$ and goes through $(7, -3)$.

79. Write an equation of the line with zero slope through the point $(4, -5)$.

80. Write an equation of the line with an undefined slope through the point $(-2, -4)$.

81. Write an equation of the horizontal line that passes through $(0, 6)$.

82. Write an equation of the line in slope-intercept form that passes through $(-1, 8)$ and is parallel to $y = \frac{2}{3}x$.

83. Write an equation of the line in standard form that passes through $(0, 3)$ and $(-1, 5)$.

84. Write an equation of the line in point-slope form that passes through $(-4, 5)$ and $(\frac{1}{2}, 3)$.

H. Radicals (*Calculator Allowed*)

Simplify the following radicals.

85. $2\sqrt{50}$

86. $\sqrt{108}$

87. $\sqrt{27} + 4\sqrt{75}$

88. $9\sqrt{20} - 3\sqrt{45}$

$$89. 7\sqrt{24} - \sqrt{48} + 3\sqrt{54}$$

$$90. \sqrt{28} - \sqrt{63} - \sqrt{35}$$

$$91. \sqrt{3}(\sqrt{7} + 3\sqrt{2})$$

$$92. \sqrt[3]{1000x^5y^6}$$

$$93. \sqrt{200x^4y^5}$$

$$94. \sqrt[3]{27x^4}$$

I. Slope, Distance, Midpoint (Calculator Allowed)

Find the slope of, distance between, and midpoint of, each of the pairs of following points.

95. $(-3, 4), (5, -12)$

96. $(5, -6), (-2, -6)$

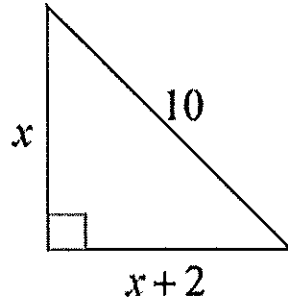
97. $\left(\frac{1}{2}, \frac{3}{5}\right), \left(\frac{9}{4}, -\frac{2}{3}\right)$

98. $(2, -7), (2, 4)$

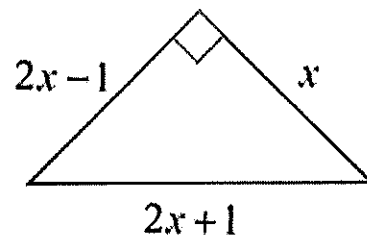
99. $(-1, -1), (5, 5)$

J. The Pythagorean Theorem (Calculator Allowed)

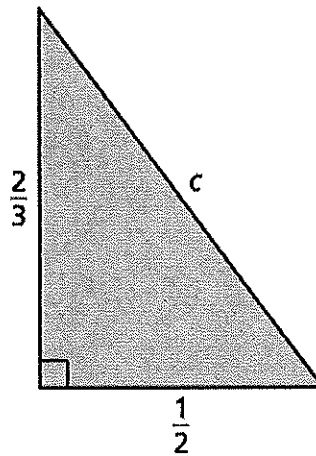
100. Find the value of x .



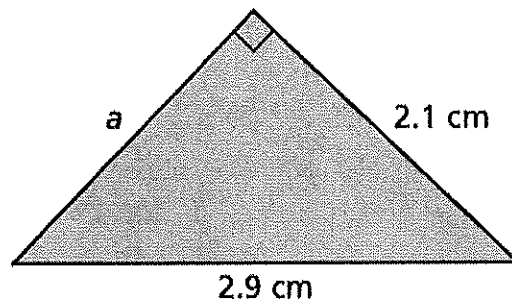
101. Find the value of x .



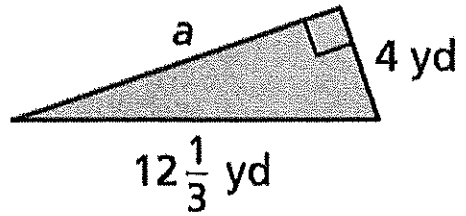
102. Find the value of c .



103. Find the value of a .

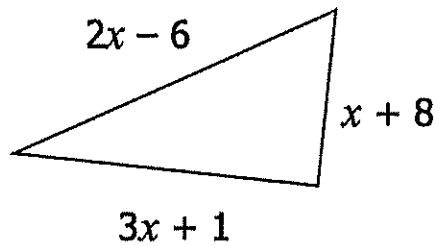


104. Find the value of a .

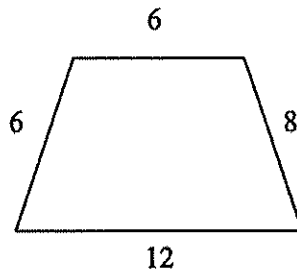


K. Perimeter, Circumference, Area, Volume (Calculator Allowed)

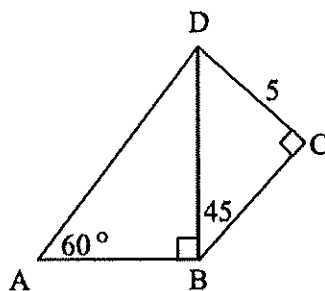
105. Write the perimeter of the triangle in simplest form.



106. Find the area.

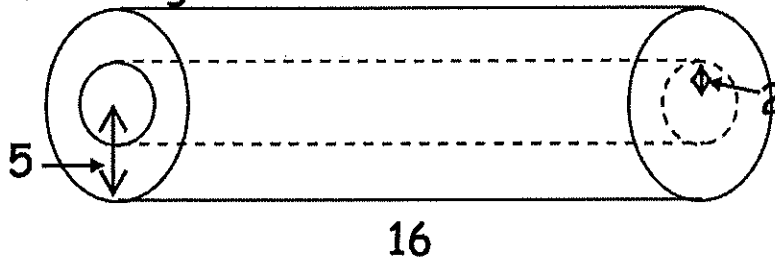


107. Find the area.

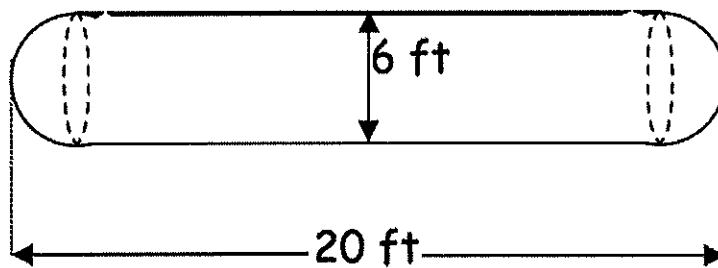


108. If the area of a circle is 356.2 square meters, find the length of the diameter.

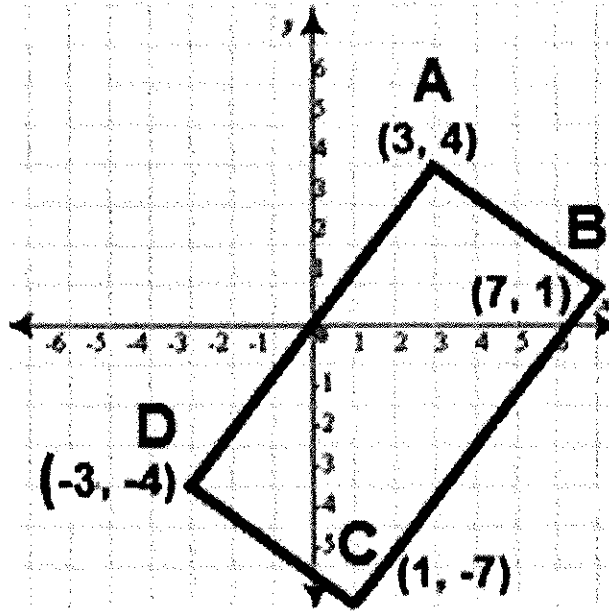
109. Find the volume of the hollow cylinder.



110. Find the volume.

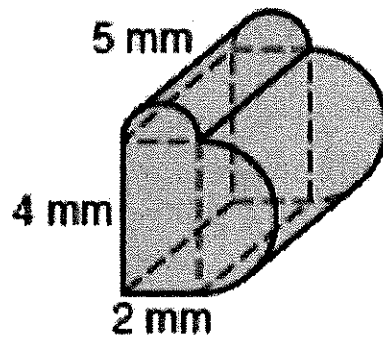


111. Find the perimeter.



112. If the circumference of a circle is 45.62 centimeters, find the length of the radius.

113. Find the volume.



114. If the dimensions of a rectangular garden can be represented by $(2x + 11)$ and $(3x + 5)$, then what is the area of the garden?