

7th Grade Summer Math Packet

This packet is for students who completed 6th grade and are entering 7th grade math honors in the Fall.

Completion of this review packet is required. It will be counted as a 25 point assignment based on completion of all problems with work shown.

Calculator use is not permitted.

The packet will be collected by the student's math teacher by the beginning of school in September.

Post-Course Test

For use after Chapter 13

Evaluate the expression for the given value(s) of the variables(s).

1. $m - 8$ when $m = 12$
2. $11y$ when $y = 5$
3. $a \div (b - 4)$ when $a = 24$ and $b = 7$
4. Describe the pattern. Then find the next three numbers.
3, 9, 27, 81, ? , ? , ?
5. Find the perimeter and the area of a rectangle that has a length of 7 feet and a width of 4 feet.

Evaluate the expression.

6. $23 - (9 - 5)^2$
7. $\frac{17 - 8}{6 + 12}$
8. $52 \div (13 \times 2)$

Find the sum, difference, product, or quotient.

9. $3.24 + 5.48$
10. $21.73 - 14.87$
11. 2.4×0.125
12. $15.3 \div 0.09$

Write the number in scientific notation.

13. 61,500
14. 17,540,000

Copy and complete the statement using $<$, $>$, or $=$.

15. 17.1 g ? 1.71 mg
16. 6.3 cm ? 63 mm
17. 1250 mL ? 12.5 kL

Find the mean, median, mode(s), and range of the data.

18. 23, 19, 32, 28, 17, 21, 28
19. 2.4, 1.7, 2.1, 1.5, 2.3, 2.1, 1.9, 1.2
20. In a survey that asked students how they used their free time, 32 said watching TV, 41 said talking on the phone, 24 said playing video games, and 15 said reading. Use this information to make a bar graph.
21. Make a stem-and-leaf plot and a box-and-whisker plot of the data: 12, 15; 9, 18, 21, 17, 10, 8, 13, 15, 14, 11, 22, 9.

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. See left.
21. See left.

Post-Course Test

For use after Chapter 13

Tell whether the number is *prime* or *composite*. Then write all the factors of the number.

22. 47

23. 81

Answers

22. _____

23. _____

24. _____

25. _____

Use a factor tree to write the prime factorization of the numbers. Then find the GCF and the LCM of the numbers.

24. 45, 150

25. 68, 102

Copy and complete the statement using $<$, $>$, or $=$.

26. $\frac{7}{12} \text{ ? } \frac{2}{3}$

27. $\frac{7}{10} \text{ ? } \frac{11}{15}$

26. _____

27. _____

28. _____

Write the decimal as a fraction or mixed number.

28. 0.04

29. 2.35

29. _____

30. _____

Find the sum, difference, product, or quotient.

30. $\frac{11}{16} + \frac{3}{4}$

31. $7\frac{2}{5} - 4\frac{7}{10}$

32. $2\frac{1}{3} \cdot 3\frac{3}{4}$

33. $\frac{7}{12} \div \frac{14}{15}$

31. _____

32. _____

33. _____

Copy and complete the statement.

34. 8 pt = ? c

35. 23 qt = ? gal ? qt

34. _____

35. _____

Find the sum or difference.

36. $\begin{array}{r} 8 \text{ ft } 5 \text{ in.} \\ + 4 \text{ ft } 9 \text{ in.} \\ \hline \end{array}$

37. $\begin{array}{r} 6 \text{ c } 4 \text{ fl oz} \\ - 3 \text{ c } 5 \text{ fl oz} \\ \hline \end{array}$

36. _____

37. _____

Order the integers from least to greatest.

38. -6, 3, -4, 0, -11, 9

39. 42, -36, 17, -28, 21, -16

38. _____

39. _____

40. Write the integer that represents a loss of 52 pounds. Then write the opposite of that integer.

40. _____

Find the sum, difference, product, or quotient.

41. $-11 + (-17)$

42. $21 - 32$

41. _____

43. $10(-3)$

44. $-54 \div (-6)$

42. _____

Evaluate the expression.

45. $-5 \cdot 8 \cdot \left(\frac{1}{5}\right)$

46. $\frac{1}{3}(1.3) + \frac{1}{3}(1.7)$

43. _____

44. _____

45. _____

46. _____

Post-Course Test

For use after Chapter 13

47. Find the length, width, and area of the rectangle formed by the points $R(-2, 3)$, $S(4, 3)$, $T(4, -1)$, and $U(-2, -1)$.

Write the verbal sentence as an equation. Let x represent the number.

48. 7 less than a number is 15.

49. 3 times the sum of a number and 2 is 12.

Simplify the expression.

50. $4x - 8 - 7x - 3$

51. $17t + 3(4t - 5)$

52. $5(3m + 1) - 8(2m + 3)$

Solve the equation. Check your solution.

53. $w - 4 = -2$

54. $\frac{2}{3}x = -10$

55. $4y - 2 = 7$

56. $-9 = -9(2z - 3)$

Solve the inequality.

57. $15 > m + 8$

58. $-7x \leq 21$

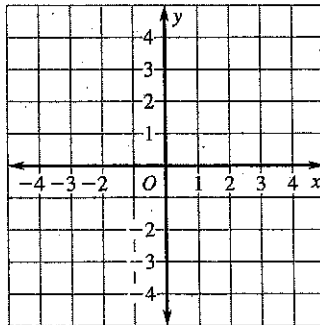
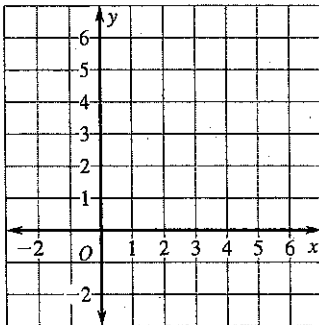
59. Write a function rule for the input-output table.

Input, x	-2	-1	0	1
Output, y	7	5	3	1

Graph the function.

60. $y = \frac{3}{5}x$

61. $y = -3x + 1$



Answers

47. _____

48. _____
49. _____
50. _____
51. _____
52. _____
53. _____
54. _____
55. _____
56. _____
57. _____
58. _____
59. _____
60. See left.
61. See left.

Post-Course Test

For use after Chapter 13

62. Determine which package of laundry soap is the better buy:
65 ounces for \$6.99 or 120 ounces for \$12.99

Solve the proportion.

63. $\frac{x}{15} = \frac{3}{7.5}$

64. $\frac{12}{16} = \frac{y}{12}$

65. A map uses a scale of 1 in. : 25 mi. If the distance between two cities on the map is 3.5 inches, what is the actual distance between the cities?

Write the percent as a decimal or the decimal as a percent.

66. 31.5%

67. 210%

68. 0.0125

69. What number is 45% of 520?

70. 75 is what percent of 30?

Identify the percent of change as an increase or a decrease. Then find the percent of change.

71. Original: 60

72. Original: 75

New: 45

New: 90

73. A store has a pair of boots that originally cost \$56 marked down 25%. How much will the boots cost on sale?

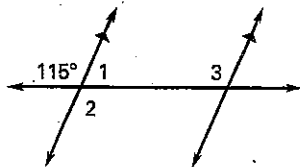
74. You deposit \$1200 in an account. The annual interest rate is 3%. How long will it take you to earn \$108 in simple interest?

For the given angle measure, find the measure of a supplementary angle and the measure of a complementary angle, if possible.

75. 27°

76. 105°

In Exercises 77–79, use the diagram to find the unknown angle measures.



77. $m\angle 1$

78. $m\angle 2$

79. $m\angle 3$

Answers

62. _____

63. _____

64. _____

65. _____

66. _____

67. _____

68. _____

69. _____

70. _____

71. _____

72. _____

73. _____

74. _____

75. _____

76. _____

77. _____

78. _____

79. _____

Post-Course Test

For use after Chapter 13

Classify the triangle by its side lengths.

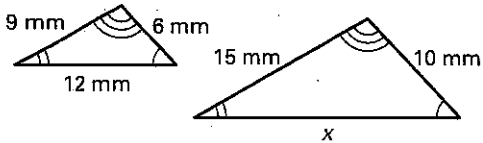
80. 5, 5, 5

81. 7, 3, 5

82. Find the sum of the angle measures in a hexagon.

83. Given that $\triangle EFG \cong \triangle HIJ$, name the corresponding sides and corresponding angles.

84. Find the unknown length given that the triangles are similar.



85. The shadow cast by a house is 55 feet long. At the same time, a flagpole that is 15 feet tall casts a 25 foot long shadow. How tall is the house?

Evaluate the expression when $x = 3$ and $y = 15$.

86. $-\sqrt{12x}$

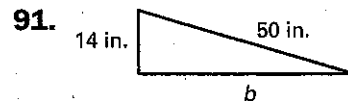
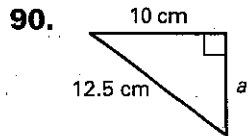
87. $\sqrt{y - 2x + 7}$

Solve the equation.

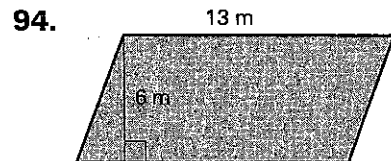
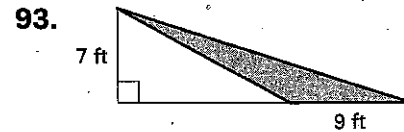
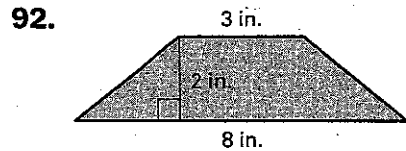
88. $a^2 - 16 = 48$

89. $3b^2 - 7 = 68$

Find the unknown length. Round to the nearest tenth if necessary.



Find the area of the triangle, parallelogram, or trapezoid.



Answers

- 80. _____
- 81. _____
- 82. _____
- 83. _____
- 84. _____
- 85. _____
- 86. _____
- 87. _____
- 88. _____
- 89. _____
- 90. _____
- 91. _____
- 92. _____
- 93. _____
- 94. _____

Post-Course Test

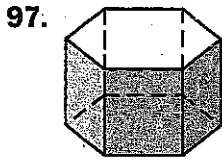
For use after Chapter 13

Find the circumference and the area of the circle with the given radius or diameter. Use 3.14 for π .

95. $r = 13$ m

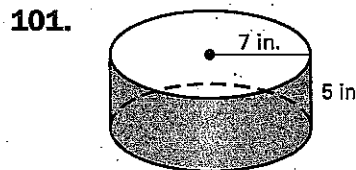
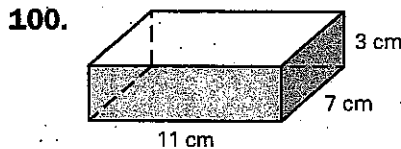
96. $d = 10$ in.

Classify the solid. Be as specific as possible.



99. Count the number of faces, edges, and vertices in the solid in Exercise 98.

Find the surface area and volume of the rectangular prism or cylinder. Use 3.14 for π .



102. A bag contains each letter of the alphabet on a separate piece of paper. Find the probability that you randomly select a , e , i , o , or u .

103. How many 3 digit numbers can be formed from the digits 1 through 9 if the digits can be used only once?

In Exercises 104–106, use the following information. A bag contains the letters from the words **SUMMER VACATION**.

104. You randomly choose a letter. What is the probability that you choose the letter M?

105. You randomly choose a letter C, replace it, and then choose a letter M. What is the probability of this happening?

106. You randomly choose a letter A, and do not replace it. Then you choose another letter A. What is the probability that both letters are A's?

Answers

95. _____

96. _____

97. _____

98. _____

99. _____

100. _____

101. _____

102. _____

103. _____

104. _____

105. _____

106. _____

Seventh Grade Pre-Algebra Honors Summer Math Packet

This packet is for students who completed Seventh Grade Pre-Algebra Honors and are entering Eighth Grade Algebra Honors in the Fall.

Completion of this review packet is required. It will be counted as a **25** point assignment based on completion of all problems with work shown.

Calculator use is not permitted.

The packet will be collected by the student's math teacher by the beginning of school in September.

Student name _____

Seventh grade math teacher _____

Pre-Algebra 7

Summer Review Packet

Simplify. Use order of operations.

$$(1) -5(-1 + 6)$$

$$(2) \frac{8(-3)}{-6}$$

$$(3) \frac{-380}{38} + \frac{380}{-38}$$

$$(4) (2)(-2) + (5)(6)$$

$$(5) \frac{-15}{15} + \frac{150}{15}$$

$$(6) (-1)(-7)^2$$

$$(7) (-3)(7)(-2)(5)$$

$$(8) (-2)^4$$

$$(9) (-3)(-12)(-1)$$

$$(10) \frac{-60}{-3} + \frac{-48}{4}$$

$$(11) -1(-6) + 8(-2)$$

$$(12) (-9)^2(-1)^5$$

$$(13) (-8)(-1)(4)(-3)$$

$$(14) \frac{9(-4)}{-2}$$

$$(15) \frac{-32}{2} + \frac{-75}{-15}$$

$$(16) -7 + 8 + (-9) + 10$$

$$(17) (-3)^2(-2)^3$$

$$(18) \frac{-6 + (-3) + (-7)}{4}$$

$$(19) -5 \cdot 2 \cdot 53$$

$$(20) -8 + 17 + (-3)$$

$$(21) \frac{-72}{8} + \frac{-56}{7}$$

$$(22) (-3 \cdot 7) + (-2 \cdot 4)$$

$$(23) \frac{170}{-10} + \frac{96}{12}$$

$$(24) (-30)^2$$

$$(25) (-7)(5)(-4)$$

$$(26) \frac{-9 \cdot 5}{3}$$

$$(27) (-2)(-3) + (-1)(7)$$

$$(28) (-4)^3$$

$$(29) \frac{(-4)(-25)}{5}$$

$$(30) \frac{-19 + (-11)}{6}$$

$$(31) 80 + (-50) + (-70)$$

$$(32) -2(-5)(-6)$$



Algebraic Expressions

Use the distributive property to write an equivalent expression.

25. $5(5 + c)$ _____ 26. $-8(y + 2)$ _____ 27. $(m + 1)9$ _____
 28. $-3(2a + 5)$ _____ 29. $4(y + 3z)$ _____ 30. $(2a + 3b)4$ _____

Factor and check by multiplying.

31. $9y + 21$ _____ 32. $14a + 35b$ _____ 33. $3x + 21y + 12z$ _____
 34. $7m + 42n$ _____ 35. $10c + c$ _____ 36. $9 + 21z$ _____
 37. $8a + 6b + 10c$ _____ 38. $10x + 25y + 30$ _____ 39. $36 + 72s + 4t$ _____

Collect like terms.

40. $17c + 6c$ _____ 41. $3y + 7x + 5y$ _____
 42. $3a^2 + 16 + 9a + 2a^2$ _____ 43. $5m + 11n + 11m + 5n$ _____
 44. $\frac{3}{5}z + \frac{2}{5}z + 4z + 9$ _____ 45. $\frac{3}{10}y + 2y + 7y + \frac{7}{10}y$ _____

Write as an algebraic expression.

- | | |
|---|---|
| 1. 7 less than 4 times a number
----- | 2. 11 more than half a number
----- |
| 3. 6 less than twice w
----- | 4. the sum of triple z and half of x
----- |
| 5. 5 more than the product of 14 and y
----- | 6. $\frac{1}{2}$ the difference of a number and 15
----- |
| 7. double the sum of x and 5
----- | 8. 4 less than the quotient of x and -5
----- |

Translate to an equation and solve.

9. A number increased by 36 is 15. Find the number. _____
 10. A number decreased by 83 is 46. Find the number. _____
 11. Rico delivered 292 newspapers this week. This was 17 more than last week. How many newspapers did he deliver last week? _____
 12. Nancy bought a box of 12 brackets for \$11.52. What was the cost of a single bracket?

 13. Shauna bought a skirt on sale for \$28. That is 80% of the regular price. What is the regular price?

Percent

Write as a decimal.

1. 19% _____ 2. 130% _____ 3. 0.05% _____ 4. 1.65% _____ 5. 24% _____

Express as a percent.

6. $\frac{3}{5}$ _____ 7. $\frac{7}{10}$ _____ 8. $\frac{10}{8}$ _____ 9. $\frac{1}{20}$ _____ 10. $\frac{3}{2}$ _____

Solve.

11. What percent of 65 is 40? _____ 12. What number is 8% of 250? _____
 13. What is 120% of 50? _____ 14. What percent of 50 is 112? _____

Find the absolute value.

15. $|4|$ _____ 16. $|-1.7|$ _____ 17. $|0|$ _____ 18. $|-8|$ _____
 19. $|-5.2|$ _____ 20. $|0.3|$ _____ 21. $|-9.1|$ _____ 22. $|-37|$ _____

Extra Practice

Use a proportion or an equation to solve.

1. 60% of 185 2. 5% of 80 3. 4% of 55

Use a proportion or an equation to solve.

4. What percent of 90 is 27? 5. 63 is what percent of 105?
 6. What percent of 160 is 120? 7. 9 out of 36 is what percent?

Use a proportion or an equation to solve. Round to the nearest tenth.

8. 14 is 7% of what number? 9. 40% of what number is 35?
 10. 15% of what number is 45? 11. 22 is 25% of what number?

Solve by writing an equation.

12. A pair of jeans costs 75% as much as a pair of corduroy pants. What is the cost of each if the total cost for the jeans and cords is \$42?
 13. When Juanita was on vacation it rained 35% of the days. She was on vacation for 20 days. How many days did it rain?

Find the discount and sale price for each.

14. Regular price = \$45 15. Regular price = \$2,450
 Discount = 40% Discount = 6%



Simplifying and Evaluating

Simplify.

- 1.) $6x + 2(3x - 1) =$ _____
- 2.) $18 - (4x - 12) =$ _____
- 3.) $5y + 3x - 13y + 5x =$ _____
- 4.) $5(2x - 8) - 14 =$ _____
- 5.) $6(4x - 9) + 5(3x + 11) =$ _____
- 6.) $18a - (a - 12) + 7(2a - 1) =$ _____
- 7.) $24 + 12(5x - 2) - 3(8x + 10) =$ _____
- 8.) $2(6y - 4) - (4y + 8) + y =$ _____
- 9.) $5a + 6(a + 3b - 4) - 10(4a - 2b) + 21 =$ _____
- 10.) $9x + 3y - 4(x - 7) + 2(5y - 8) - (6x + 11y) =$ _____

Evaluate for the given values.

① $\frac{xa}{c} =$

⑥ $\frac{-8y^2}{b+z} =$

② $\frac{2a^2}{x} =$

⑦ $\frac{x^2+c^2}{b} =$

③ $\frac{(2a)^2}{x} =$

⑧ $\frac{y^2-a^2}{y+a} =$

④ $\frac{(2a)^2}{2a^2} =$

⑨ $\frac{-x^2}{z} =$

⑤ $\frac{c^2y^2}{z} =$

⑩ $\frac{-4a^2}{c+b} =$

VALUES OF THE VARIABLES	
$x=2$	$a=-3$
$y=-1$	$b=-8$
$z=4$	$c=6$

⑪ $\frac{(z+b)^2}{2b} =$

⑫ $\frac{3a^2+7a}{x} =$

More Equations

SP6

Solve by clearing fractions.

1.) $\frac{2}{7}x + \frac{1}{2}x = \frac{3}{4}x + 1$

2.) $\frac{8}{5}y - \frac{2}{3}y = 23 - \frac{1}{15}y$

3.) $9 - \frac{4}{5}[u - 3] = 1$

4.) $\frac{4}{9}y - \frac{4}{3} = \frac{1}{6}y + \frac{11}{18}$

5.) $1 - \frac{2}{3}y = \frac{9}{5} - \frac{y}{5} + \frac{3}{5}$

6.) $\frac{2}{3} + 3y = 5y - \frac{2}{15}$

Solve by clearing decimals.

7.) $0.13y - 4.1 = 0.3y - 1.7 - 0.41y$

8.) $0.7n - 15 + n = 1.2 + 1.5n - 9.2$

9.) $0.07x + 9.95 = 9.1x - 4.5x + 12.47 - 4.6x$



Rewriting Formulas

SP7

Write an expression for each of the following.

1. An adult's ticket costs \$1.75 more than a child's ticket. Write an expression for the total cost of three adults' tickets and five children's tickets.
-

2. There are 114 more boys than girls in the sophomore class. Write an expression for the total number of sophomore students.
-

3. The sum of three consecutive integers
-

4. The sum of an integer and half of the next integer.
-

Solve.

5. The sum of three consecutive integers is 84. What are the integers?
-

6. The sum of three consecutive odd integers is 159. Find the integers.
-

7. A 35-ft board is cut into three pieces. The second piece is twice as long as the first. The third is twice as long as the second. How long is each piece?
-

* Solve for the given variable.

8. $A = 2bc$, for b _____

9. $A = 2bc$, for c _____

10. $R = \frac{s}{t}$, for s _____

11. $R = \frac{s}{t}$, for t _____

12. $W = 3y + 3z$, for y _____

13. $W = 3y + 3z$, for z _____

14.) $A = \pi r^2$, for r^2

15.) $A = \pi r^2$, for π

16.) $A = \frac{1}{2}bh$, for b

17.) $A = \frac{1}{2}bh$, for h

18.) $E = mc^2$, for m

19.) $E = mc^2$, for c^2

20.) $A = \frac{a+b+c}{3}$, for b

21.) $A = \frac{a+b+c}{3}$, for c

22.) $v = \frac{3k}{t}$, for t

23.) $P = \frac{ab}{c}$, for c

Proportions and Fractions

SP8

Solve.

① $\frac{10}{6} = \frac{15}{F}$ F =

③ $\frac{4}{A} = \frac{9}{18}$ A =

⑤ $\frac{24}{D} = \frac{16}{22}$ D =

② $\frac{6}{4} = \frac{H}{10}$ H =

④ $\frac{C}{15} = \frac{21}{9}$ C =

⑥ $\frac{15}{20} = \frac{18}{K}$ K =

7. $\frac{52}{4} = \frac{m}{5}$ _____

8. $\frac{2}{7} = \frac{6}{c}$ _____

9. $\frac{105}{168} = \frac{7}{8}$ _____

10. $\frac{8}{a} = \frac{21}{42}$ _____

11. $\frac{t}{9} = \frac{10}{15}$ _____

12. $\frac{3}{5} = \frac{21}{y}$ _____

13. The ratio of boys to girls on the swim team is 5 to 4. How many girls are on the team if there are 65 boys?

14. Mitch can type 4 pages in 15 minutes. At this rate, how many pages can he type in 2 hours?

Compute.

① $-1\frac{1}{4} + -2\frac{1}{2} =$

⑧ $4\frac{2}{9} + -9\frac{1}{2} =$

② $-3\frac{2}{3} + -1\frac{2}{5} =$

⑨ $-8\frac{3}{4} + 1\frac{2}{5} =$

③ $4\frac{1}{2} + -2\frac{1}{3} =$

⑩ $-3\frac{1}{4} + -5\frac{7}{9} =$

④ $3\frac{1}{6} + -5\frac{3}{5} =$

⑪ $6\frac{8}{11} + 2\frac{2}{3} =$

⑤ $-8\frac{3}{4} + 1\frac{3}{10} =$

⑫ $5\frac{5}{6} + -5\frac{8}{9} =$

⑥ $-7\frac{1}{3} + 7\frac{3}{4} =$

⑬ $-3\frac{4}{5} + 2\frac{3}{10} =$

⑦ $-2\frac{1}{16} + -2\frac{1}{3} =$

⑭ $8\frac{3}{8} + -9\frac{2}{3} =$

Inequalities

SP9

Solve.

1.) $-3x < 18$

2.) $5x \leq 7x + 6$

3.) $5 - 2x \geq -16$

4.) $24 > 7y - 11$

5.) $2(3a - 5) > 2a + 6$

6.) $-3(4y - 6) \leq 7 - y$

7.) $10(x + 2) > -2(6 - 9x)$

8.) $9x - 2x \geq 14 - 9(-x - 4)$

9.) $2(8x - 6) - 7x < 12 + 5x$

Scientific Notation.

Write using standard notation.

40. 6.781×10^5 _____

41. 2.001×10^{-2} _____

42. 7.61×10^{-3} _____

43. 3.114×10^3 _____

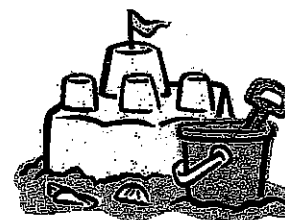
Write using scientific notation.

44. 6,821,000 _____

45. 0.810001 _____

46. 0.00000671 _____

47. 2631 _____



Graphing on the Coordinate Plane

*For the following points, tell the location on the coordinate plane.

QI = Quadrant 1; QII = Quadrant 2; QIII = Quadrant 3; QIV = Quadrant 4

Other choices: Origin; X axis; Y axis

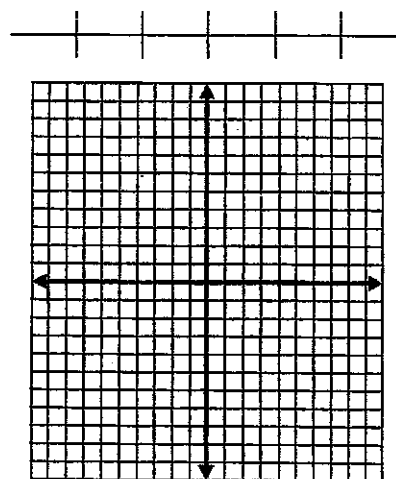
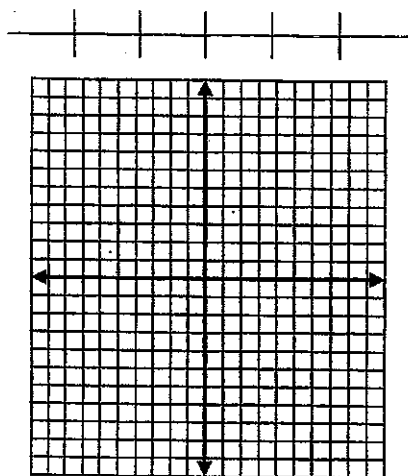
1) (2, -4) _____ 2) (0, 8) _____ 3) (6, 7) _____

4) (-12, -3) _____ 5) (0, 0) _____ 6) (-5, 0) _____

*Make a table of solutions for the following linear equations. Use -2, -1, 0, 1, 2 for x values. Then graph the solutions on the coordinate plane and create a line.

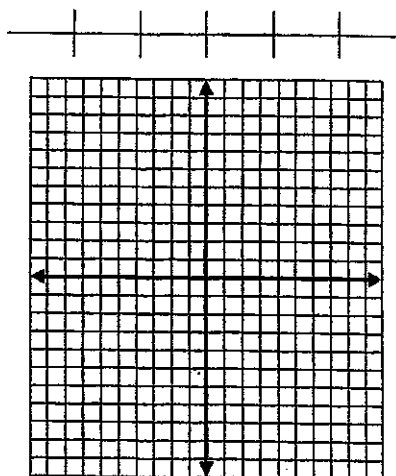
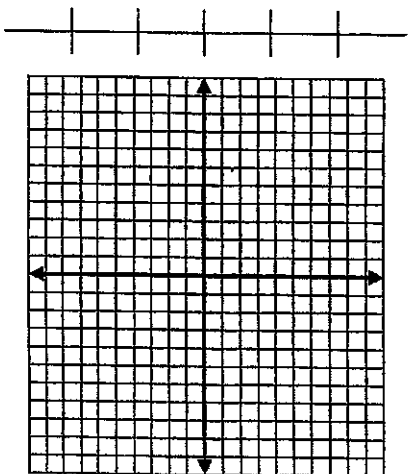
7) $y = 3x$

8) $y = 2x + 5$



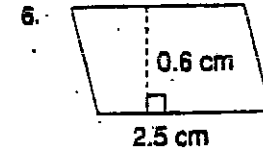
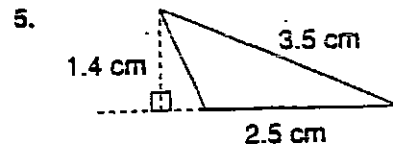
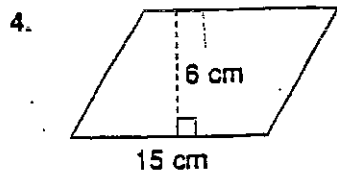
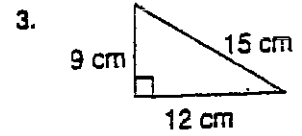
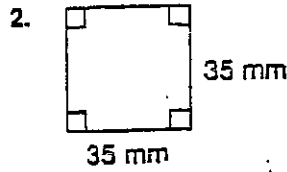
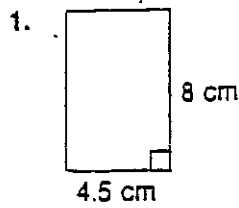
9) $y = 5x - 1$

10) $6x + 2y = -8$

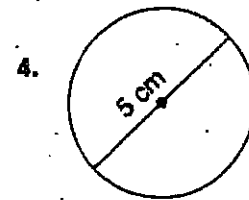
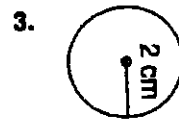
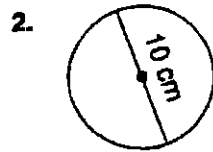
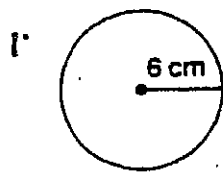


Finding Area of Plane Figures

Find the area of each figure.



Find the circumference and the area of each circle.
Choose mental math, paper and pencil, or a calculator. Use 3.14 for π . Round to the nearest hundredth.



$C =$ _____

$C =$ _____

$C =$ _____

$C =$ _____

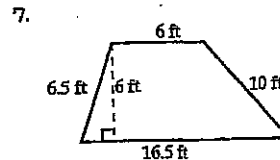
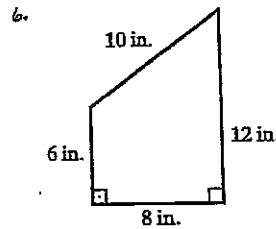
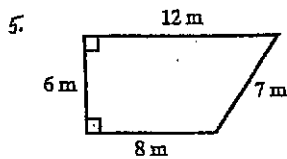
$A =$ _____

$A =$ _____

$A =$ _____

$A =$ _____

Find the area of each trapezoid.



Find the area of each shaded region. Round to the nearest hundredth.

