

GEOMETRY & MEASUREMENT

- _____ 1. The measure for a stud for a wall must be $72'' \pm \frac{1}{4}''$. Which of the following studs is allowed?
a. 72.75 in b. 72.31 in c. 71.81 in d. 71.25 in
- _____ 2. At a bolt manufacturing company, 6" bolts were measured before being sold. Any bolt measuring more than $\pm 0.05''$ would not be sold. Which of the following bolts will be stocked on the shelf?
a. 6.04 in b. 6.5 in c. 5.94 in d. 5.5 in
- _____ 3. If the thermometer outside reads 104°F , what is the temperature in degrees C?
a. 72° b. 8° $C = \frac{5}{9}(F - 32)$
c. 40° d. 58°
- _____ 4. If the thermometer outside reads 15°C , what is the temperature in degrees F?
a. 59° b. 47° $F = \frac{9}{5}C + 32$
c. 41° d. 35°
- _____ 5. The volume of a container is 3 gallons. How many cups are in the container?
[1 gallon = 4 quarts; 1 quart = 4 cups]
a. 12 b. 16 c. 24 d. 48
- _____ 6. You buy a $\frac{1}{2}$ gallon of fruit punch, $\frac{1}{2}$ gallon of orange juice and $\frac{1}{2}$ gallon of pink lemonade.
How many ounces of fluid did you buy altogether?
[1 gallon = 4 quarts; 1 quart = 4 cups; 1 cup = 8 oz]
a. 128 b. 192 c. 16 d. 24
- _____ 7. Nick has a quarter. Which is the most appropriate unit of measure for width of the quarter?
a. millimeter b. centimeter c. meter d. kilometer
- _____ 8. Lisa's dog has a bad ear infection so she took it to the vet. The doctor prescribed a liquid antibiotic for the infection. Which is the most appropriate unit of dosage?
a. milliliter b. liter c. centigram d. gram

_____9. Which liquid measurement is the most precise?

- a. 2 cups b. 2 oz c. 2 quarts d. 2 gallons

_____10. Which measurement is the most precise?

- a. 1 foot b. 1 inch c. 1 mm d. 1 cm

_____11. How precise is this ruler?



- a. 1 in b. 8 inches c. $\frac{1}{8}$ inch d. $\frac{1}{16}$ inch

_____12. Jeff has an 8 ft 6 in board. If he cuts 2 ft 10 in off how much is left?

- a. 5 ft 6 in b. 6 ft 6 in c. 5 ft 8 in d. 6 ft 8 in

_____13. When Mike was 10 years old he was 4 ft 11 in. When he graduated at 18 he was 6 ft 3 in. What was the amount of growth per year?

- a. 2 in b. 16 in c. 8 in d. 1.5 in

_____14. Gas prices in 1990 were \$1.95 per gallon. In 2005 gas prices rose to \$3.45 per gallon. What was the amount of increase per year?

- a. \$0.01 b. \$0.10 c. \$0.15 d. \$0.30

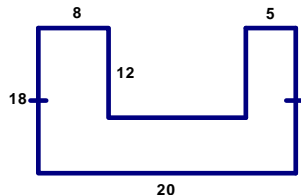
_____15. Which measurement best describes the area of a wall?

- a. 100 ft b. 100 ft² c. 100 ft³ d. 100 ft⁴

_____16. If Sara puts a fence around her yard, what measurement does she need to find?

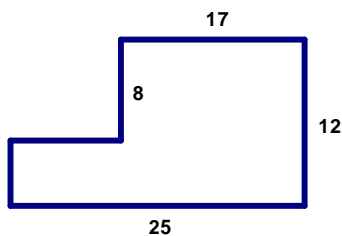
- a. perimeter b. area c. volume d. surface area

_____17. What is the perimeter of the given figure?



- a. 63 un b. 100 un
c. 88 un d. 70 un

_____18. What is the perimeter of the given figure?



- a. 52 un b. 62 un
c. 64 un d. 74 un

_____ 19. The sides of a rectangle have lengths of $5x + 3$ and $2x - 1$. Which equation describes the perimeter, P , of the rectangle in terms of x ?

- a. $P = 7x + 2$ b. $P = 14x + 2$
c. $P = 7x - 2$ d. $P = 14x + 4$

_____ 20. The sides of a rectangle have lengths of $2x + 4$ and $x - 3$. Which equation describes the area, A , of the rectangle in terms of x ?

- a. $A = 2x^2 - 12$ b. $A = 2x^2 + 2x - 12$
c. $A = 2x^2 - 2x - 12$ d. $A = 2x^2 + 10x + 12$

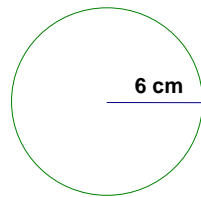
_____ 21. A sandbox is twice as long as it is wide. Its area is 72 in^2 . What is the perimeter of the sandbox?

- a. 6 in b. 8 in c. 24 in d. 36 in

_____ 22. If the area of a square is $100x^2$, then the length of each side is _____.

- a. $10x^2$ b. $10x$ c. $100x$ d. $25x$

_____ 23. Find the Area of the circle. (Formula $A = \pi r^2$)

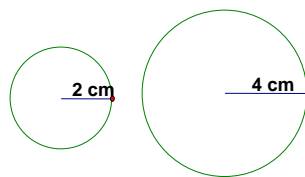


- a. $6\pi \text{ cm}^2$ b. $12\pi \text{ cm}^2$
c. $24\pi \text{ cm}^2$ d. $36\pi \text{ cm}^2$

_____ 24. If the area of a circle is $36\pi \text{ cm}^2$, then the radius is _____.

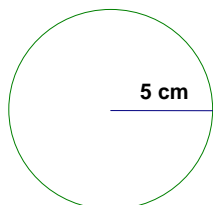
- a. 6 cm b. 36 cm c. 18 cm d. 1296 cm

_____ 25. If the radius of a circle is doubled, what happens to the area of the circle?



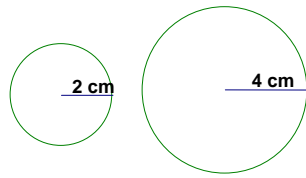
- a. it doubles b. it quadruples
c. it triples d. its stays the same

_____ 26. What is the circumference of the circle? (Formula $C = d\pi$ or $C = 2\pi r$)



- a. $5\pi \text{ cm}$ b. $10\pi \text{ cm}$
c. $25\pi \text{ cm}$ d. $15\pi \text{ cm}$

_____27. If the radius of a circle is doubled, what happens to the circumference of the circle?

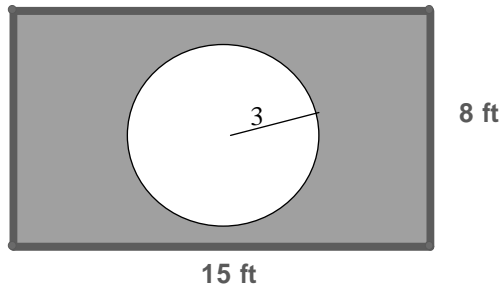


- a. it doubles
- b. it quadruples
- c. it triples
- d. its stays the same

_____28. If the area of a circle is $49\pi \text{ in}^2$, then the circumference of the circle is _____.

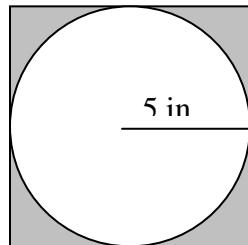
- a. 7π
- b. 14π
- c. 49π
- d. π

_____29. What is the area of the shaded region?



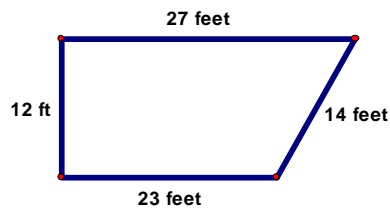
- a. 120
- b. $120 - 9\pi$
- c. $120 - 3\pi$
- d. $120 - 6\pi$

_____30. What is the area of the shaded region?



- a. 5π
- b. 25π
- c. $100 - 25\pi$
- d. $100 - 10\pi$

_____31. Kristen's backyard is shown below. What is the area of her backyard?



- a. 76 ft^2
- b. 300 ft^2
- c. 600 ft^2
- d. 276 ft^2

$$A = \frac{1}{2}h(b_1 + b_2)$$

_____32. A trapezoid has one base of 15 cm, height of 10 cm and area of 160 cm^2 . What is the length of the second base?

- a. 10
- b. 85
- c. 21
- d. 17

_____33. How many cubic inches are in one cubic foot?

- a. 12 in^3
- b. 144 in^3
- c. 1728 in^3
- d. $20,736 \text{ in}^3$

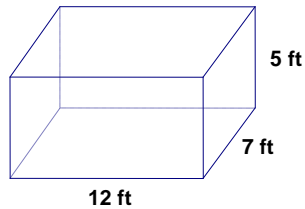
_____34. How many cubic feet are in a cubic yard?

- a. 9 ft^3 b. 3 ft^2 c. 27 ft^2 d. 81 ft^2

_____35. Carly wants to build a garden. She has determined she needs 2 yd^3 of top soil. Each bag of topsoil contains $\frac{1}{2} \text{ ft}^3$. How many bags does she need to buy?

- a. 6 b. 12 c. 54 d. 108

_____36. What is the volume of the rectangular prism? (Formula: $V = lwh$)



- a. 24 ft^3 b. 144 ft^3
c. 420 ft^3 d. 89 ft^3

_____37. A refrigerator has a volume of 240 ft^3 . If the width is 6 feet and the length is 5 feet, then what is the height?

- a. 8 ft b. 4 ft c. 22 ft d. 10 ft

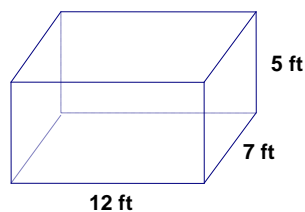
_____38. Find the volume of a cylinder given a radius of 4 in and a height of 5 in. (Formula: $V = \pi r^2 h$)

- a. $20\pi \text{ in}^3$ b. $100\pi \text{ in}^3$ c. $80\pi \text{ in}^3$ d. $9\pi \text{ in}^3$

_____39. The volume of a cylindrical can is $45\pi \text{ cm}^3$ and it has a radius of 3 cm. How tall is the can?

- a. 15 cm b. 9 cm c. 5 cm d. 8 cm

_____40. Find the surface area of the rectangular prism. (Formula: $SA = 2lw + 2lh + 2hw$)

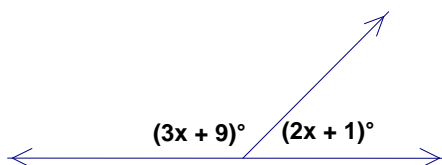


- a. 420 ft^2 b. 358 ft^2
c. 24 ft^2 d. 89 ft^2

_____41. Find the length of each side of a cube whose surface area of 96 cm^2 .

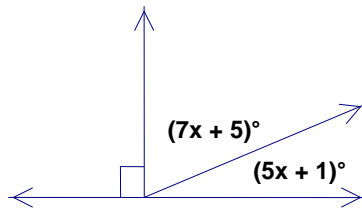
- a. 3.5 cm b. 4 cm
c. 16 cm d. 32 cm

_____42. Find the value of x.



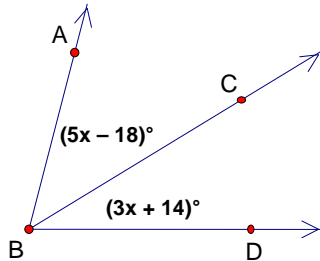
- a. -8 b. 16
c. 34 d. 170

_____43. Find the value of x.



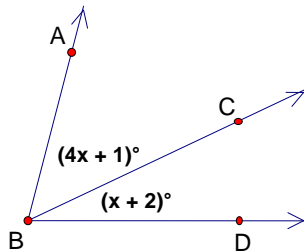
- a. 7
- b. -4
- c. 12
- d. 14

_____44. Find the value of x given \overline{BC} is an angle bisector.



- a. 4
- b. 8
- c. 32
- d. 16

_____45. Find the value of x given $m\angle ABD = 78^\circ$.



- a. 15
- b. 3
- c. $\frac{1}{3}$
- d. 25

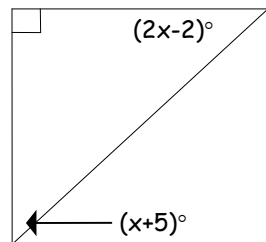
_____46. Two angles are supplementary. One angle is five times the measure of the other angle. What are the angle measures?

- a. 20° and 160°
- b. 30° and 150°
- c. 10° and 50°
- d. 20° and 70°

_____47. Two angles are complementary. One angle is four times the measure of the other angle. What are the angle measures?

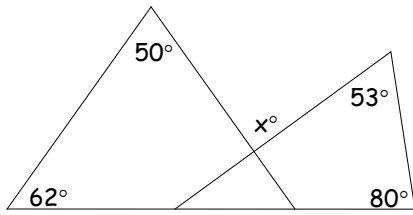
- a. 18° and 72°
- b. 36° and 54°
- c. 36° and 154°
- d. 20° and 80°

_____48. Find the value of x.



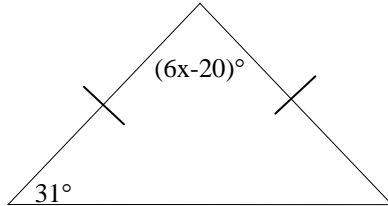
- a. 7
- b. 29
- c. 30
- d. 62.5

_____49. Find the value of x .



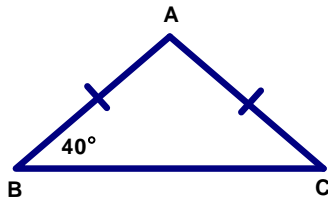
- a. 112
- b. 133
- c. 68
- d. 65

_____50. Find the value of x .



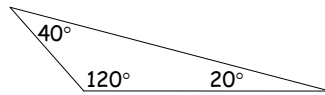
- a. 8.5
- b. 62
- c. 23
- d. 118

_____51. Find the measure of the vertex angle.



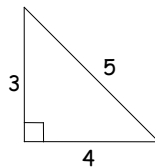
- a. 40°
- b. 80°
- c. 100°
- d. 180°

_____52. Classify the triangle by its angles.



- a. Obtuse
- b. Acute
- c. Right
- d. Equiangular

_____53. Classify the triangle by its sides.



- a. Scalene
- b. Isosceles
- c. Equilateral
- d. Normal

_____54. At a pet store there are 20 cats and 27 dogs. Which ratio represents the number of cats to all pets at the pet store?

- a. $\frac{20}{27}$
- b. $\frac{20}{47}$
- c. $\frac{27}{20}$
- d. $\frac{7}{20}$

_____55. Find the value of x in the given proportion.

$$\frac{2}{7} = \frac{4}{x-3}$$

- a. 17 b. 14
c. 10 d. 4

_____ 56. The Lions won 2 out of the last 5 games. If this pattern continues, how many games will they win if they play 20 games?

- a. 10 b. 8 c. 13 d. 6

_____ 57. A lawn fertilizer must be applied at a rate of 3 gallons for every 10 square feet. How many gallons are needed to fertilize 250 square feet?

- a. 25 b. 83 c. 75 d. 150

_____ 58. If two polygons are similar, then their corresponding angles are _____

- a. congruent b. linear pairs
c. complementary d. supplementary

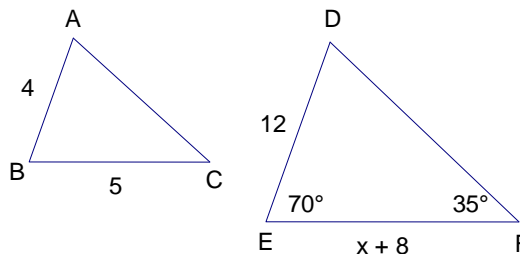
_____ 59. If two polygons are similar, then their corresponding sides are _____

- a. similar b. congruent
c. parallel d. proportional

Use the diagram at the right for 60 and 61

_____ 60. What is the $m\angle C$ given $\triangle ABC \sim \triangle DEF$?

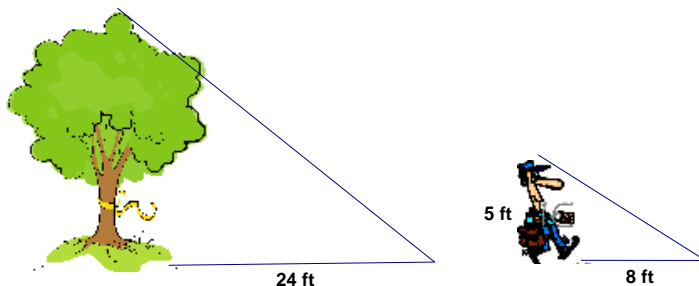
- a. 35° b. 70°
c. 85° d. 75°



_____ 61. Find the value of x given $\triangle ABC \sim \triangle DEF$.

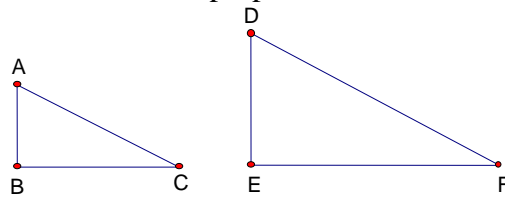
- a. 15 b. 12 c. 12 d. 7

_____ 62. A man 5 feet tall casts a 8 foot shadow. At the same time the shadow of a tree is 24 ft. How tall is the tree?



- a. 3 ft b. 15 ft
c. 38 ft d. 8 ft

_____63. Which is a correct proportion for the similar figures below?



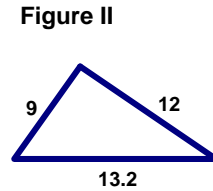
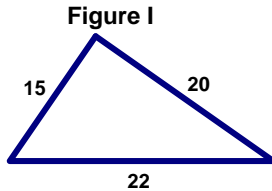
a. $\frac{AB}{DE} = \frac{BC}{DF}$

b. $\frac{BC}{EF} = \frac{AC}{DE}$

c. $\frac{AB}{BC} = \frac{DE}{EF}$

d. $\frac{AC}{BC} = \frac{DE}{EF}$

_____64. What is the scale factor of figure I to figure II?



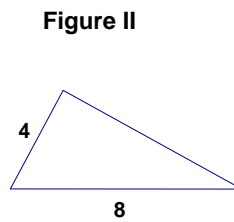
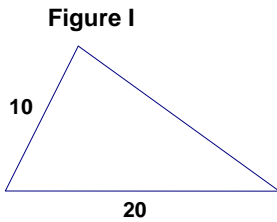
a. $\frac{3}{2}$

b. $\frac{4}{3}$

c. $\frac{5}{3}$

d. $\frac{3}{5}$

_____65. By what percent was figure I reduced to figure II?



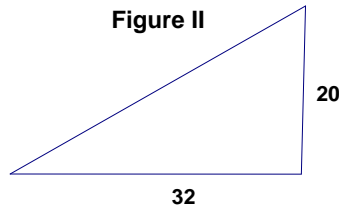
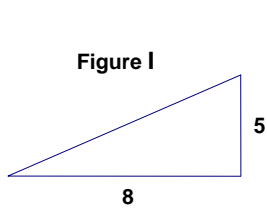
a. 12%

b. 40%

c. 50%

d. 60%

_____66. By what percent was figure I enlarged to figure II?



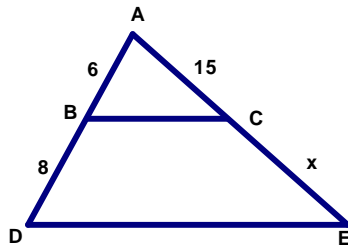
a. 75%

b. 25%

c. 300%

d. 250%

_____67. What is the value of x?



Given
BC || DE

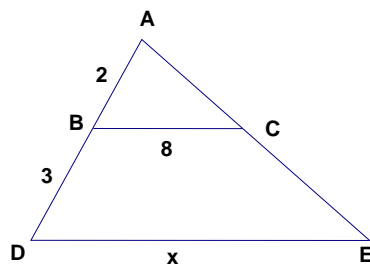
a. 20

b. 17

c. 35

d. 40

_____68. What is the value of x?



Given
BC || DE

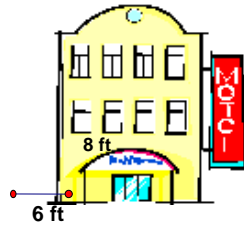
a. 12

b. 20

c. 9

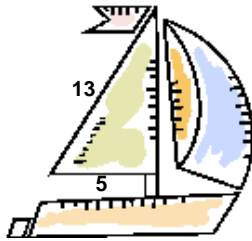
d. 24

- _____ 69. A ladder is leaning against the side of a building. The ladder is 6 ft away from the building and touches the building at a point 8 feet from the base. How long is the ladder?



- a. 10 feet b. 14 feet
c. 2 feet d. 100 feet

- _____ 70. The longest side of a triangular sail measures 13 ft and the base of the sail is 5ft. What is the height of the sail?

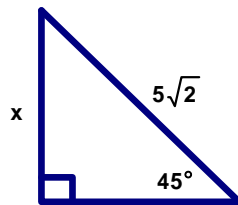


- a. 19 ft b. 18 ft
c. 12 ft d. 144 ft

- _____ 71. Mike left his house and went 3 miles east then turned and went 4 miles south. How far is he from home?

- a. 7 miles b. 8 miles c. 5 miles d. 12 miles

- _____ 72. What is the value of x?



- a. 5 b. 10
c. 25 d. 100

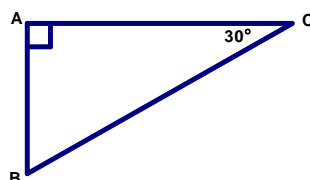
- _____ 73. The diagonal of a square is $11\sqrt{2}$. What is the length of each side of the square?

- a. 11 b. 44 c. 22 d. 88

- _____ 74. The diagonal of a square is $7\sqrt{2}$. What is its perimeter?

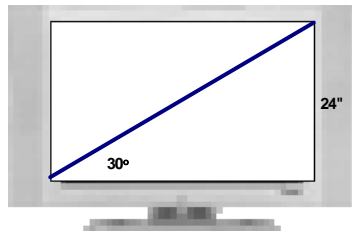
- a. 7 b. 28 c. 49 d. 14

- _____ 75. Use $\triangle ABC$ shown below. Which statement describes the relationship between the length of \overline{BC} and \overline{AB} ?



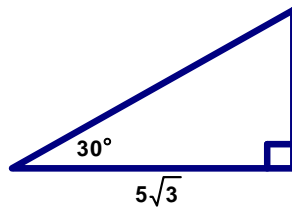
- a. \overline{BC} is $\sqrt{2}$ times as long as \overline{AB}
b. \overline{BC} is $\sqrt{3}$ times as long as \overline{AB}
c. \overline{BC} is 2 times as long as \overline{AB}
d. \overline{BC} is 3 times as long as \overline{AB}

_____76. What is the length of the diagonal of the television?



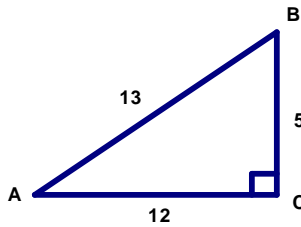
- a. 12"
- b. 24"
- c. 48"
- d. 8"

_____77. What is the length of the hypotenuse of the given right triangle?



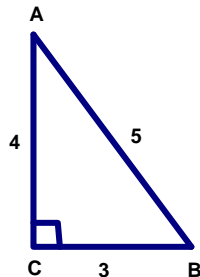
- a. 5
- b. 10
- c. $10\sqrt{3}$
- d. 15

_____78. What is the value of the $\cos A$?



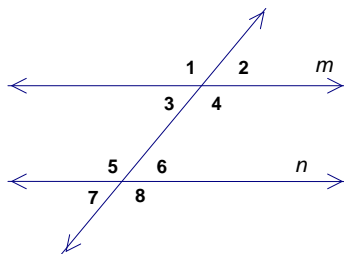
- a. $\frac{5}{12}$
- b. $\frac{12}{13}$
- c. $\frac{13}{12}$
- d. $\frac{12}{5}$

_____79. What is the value of the $\sin B$?



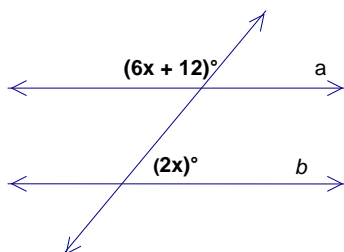
- a. $\frac{3}{4}$
- b. $\frac{3}{5}$
- c. $\frac{4}{3}$
- d. $\frac{4}{5}$

_____80. Line m is parallel to line n . Which answer makes an accurate statement about the angle relationships illustrated?



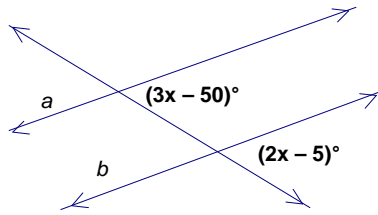
- a. $\angle 1 \cong \angle 2$
- b. $\angle 1 \cong \angle 8$
- c. $\angle 7 \cong \angle 4$
- d. $\angle 4 \cong \angle 6$

_____81. Line a is parallel to line b in the diagram below. Which of the following is the value of x ?



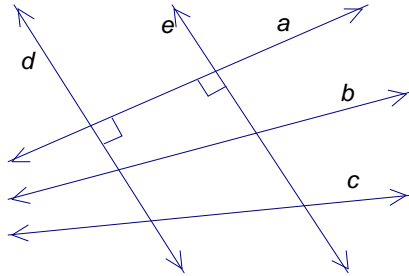
- a. -3
- b. 2.5
- c. 21
- d. 25

_____ 82. Line a is parallel to line b in the diagram below. Which of the following is the value of x ?



- a. 25
- b. 45
- c. 7
- d. 80

_____ 83. Which pair of lines is parallel?



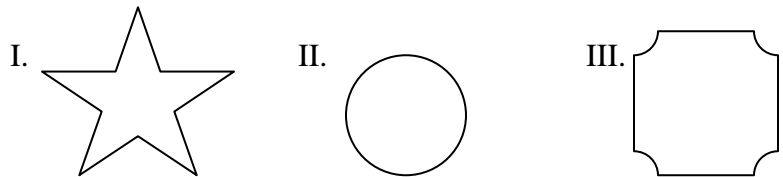
- a. d and e
- b. a and b
- c. b and c
- d. a and c

_____ 84. A polygon with 7 sides is called a _____.

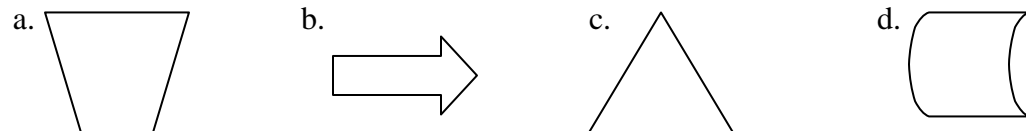
- a. nonagon
- b. heptagon
- c. decagon
- d. hexagon

_____ 85. Which figure is a polygon

- a. I only
- b. II only
- c. III only
- d. I and III



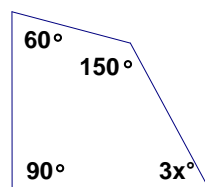
_____ 86. Which polygon is concave?



_____ 87. The sum of the measures of the interior angles of a convex quadrilateral is _____.

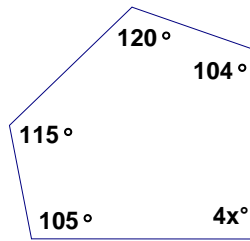
- a. 270°
- b. 180°
- c. 540°
- d. 360°

_____ 88. What is the value of x ?



- a. 20
- b. 60
- c. 40
- d. 300

_____ 89. What is the value of x ?



- a. 22.5
- b. 96
- c. 24
- d. 540

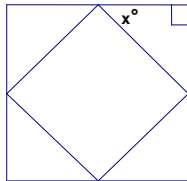
_____ 90. What is sum of the exterior angles of a regular polygon?

- a. 180°
- b. 360°
- c. 90°
- d. 60°

_____ 91. What is the measure of each exterior angle of a regular hexagon?

- a. 30°
- b. 45°
- c. 60°
- d. 90°

_____ 92. Find the value of x given a square inside a square

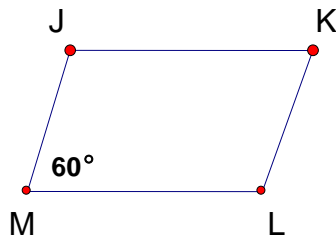


- a. 45°
- b. 90°
- c. 60°
- d. 180°

_____ 93. Opposite angles of a parallelogram must be _____

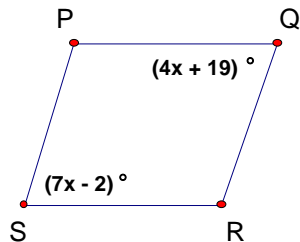
- a. complementary
- b. supplementary
- c. congruent
- d. A and B

_____ 94. JKLM is a parallelogram. What is the $m\angle K$?



- a. 60°
- b. 120°
- c. 90°
- d. 180°

_____ 95. What is the $m\angle Q$ given parallelogram PQRS?



- a. 7°
- b. 66°
- c. 14°
- d. 47°

_____ 96. If a quadrilateral has four equal sides, then it is a _____.

- a. rectangle
- b. square
- c. rhombus
- d. B and C

_____ 97. If a quadrilateral has four equal sides and four right angles, then it is a _____.

- a. rectangle
- b. square
- c. rhombus
- d. B and C

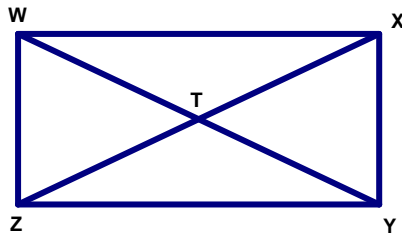
_____ 98. The diagonals of a rectangle are _____

- a. congruent
- b. perpendicular
- c. bisect each other
- d. A and C

_____ 99. The diagonals in a rhombus are _____.

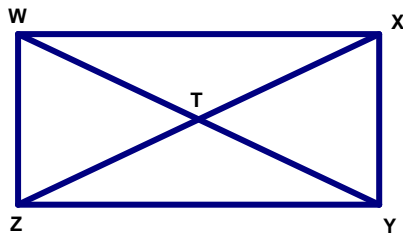
- a. perpendicular and bisect each other
- b. congruent and bisect each other
- c. parallel, congruent, and bisect each other
- d. congruent and don't bisect each other

_____ 100. If $WT = 2a + 1$ and $TX = 9$, then what is the value of a ?



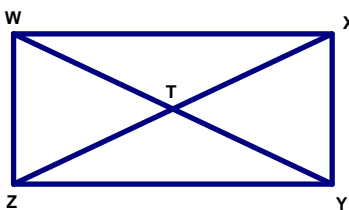
- a. 9
- b. 4
- c. 8.5
- d. 18

_____ 101. If $m\angle ZYT = 30^\circ$, then what is the $m\angle XYT$?



- a. 30°
- b. 90°
- c. 60°
- d. 180°

_____ 102. If $m\angle TYX = 50^\circ$, then what is the $m\angle YTX$?

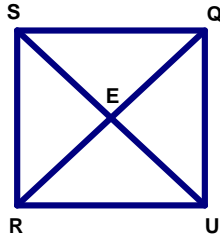


- a. 50°
- b. 100°
- c. 40°
- d. 80°

_____ 103. The diagonals in a square are _____.

- a. perpendicular, congruent, and bisect each other
- b. not congruent and bisect each other
- c. parallel, congruent, and bisect each other
- d. congruent and don't bisect each other

_____ 104. Given square QURS, what is the measure of $\angle EQU$?



- a. 45°
- b. 90°
- c. 180°
- d. 60°

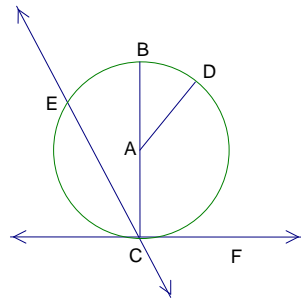
_____ 105. A segment whose endpoints are on a circle is a _____.

- a. tangent
- b. chord
- c. radius
- d. secant

_____ 106. A line which intersects a circle at exactly one point is called a _____.

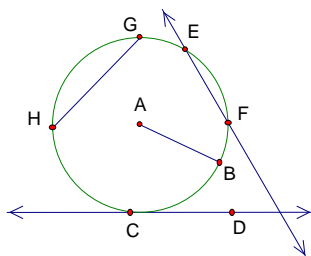
- a. chord
- b. secant
- c. tangent
- d. point of tangency

_____ 107. In the circle below, \overline{EC} is a _____.



- a. tangent
- b. secant
- c. chord
- d. diameter

_____ 108. In the circle below, \overline{HG} is a _____.



- a. tangent
- b. secant
- c. chord
- d. diameter

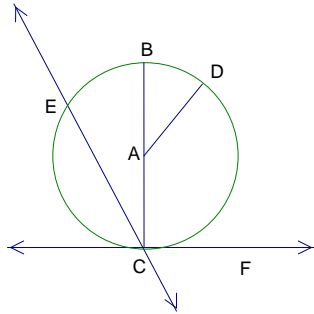
_____ 109. How many degrees are in a circle?

- a. 90°
- b. 180°
- c. 270°
- d. 360°

_____110. How many degrees are in a semicircle?

- a. 90° b. 180° c. 270° d. 360°

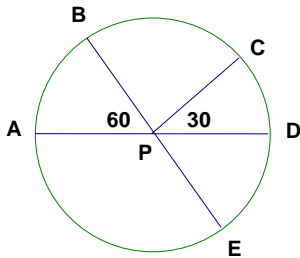
_____111. Which angle is a central angle?



- a. $\angle ECB$ b. $\angle BAD$
c. $\angle ECF$ d. $\angle DAF$

_____112. What is the $m\angle BPD$?

AD and BE are diameters



- a. 30° b. 60°
c. 90° d. 120°

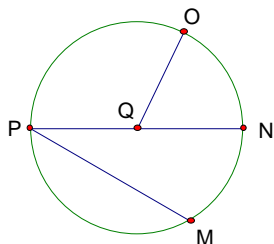
_____113. A round pizza is cut into 8 equally sized pieces. What is the measure of the central angle of each piece?

- a. 8° b. 22.5°
c. 45° d. 90°

_____114. A round pie is cut into 12 equally sized pieces. What is the measure of the central angle of each piece?

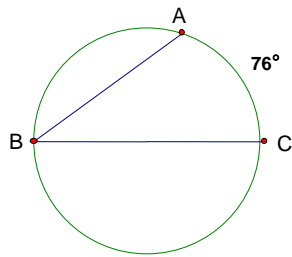
- a. 12° b. 15°
c. 30° d. 90°

_____115. Which angle is an inscribed angle?



- a. $\angle PQN$ b. $\angle MPN$
c. $\angle OQN$ d. $\angle PQO$

_____ 116. What is the $m\angle ABC$?



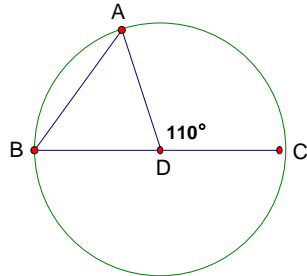
a. 38°

b. 76°

c. 152°

d. 180°

_____ 117. What is the $m\angle ABC$?



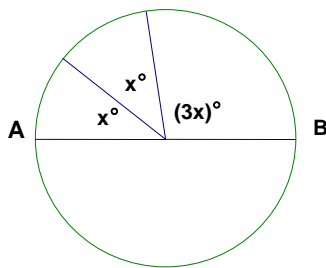
a. 22

b. 110°

c. 55°

d. 70°

_____ 118. \overline{AB} is a diameter of the given circle. What is the value of x ?



a. 36

b. 72

c. 45

d. 60

_____ 119. Express 325,000,000 in scientific notation.

a. 3.25×10^8

b. 325×10^6

c. 3.25×10^{-8}

d. 32.5×10^7

_____ 120. Express 0.00004562 in scientific notation

a. 4.562×10^8

b. 4.562×10^5

c. 4.562×10^{-5}

d. 4562×10^{-8}

_____ 121. Express 5.3×10^3 in standard form.

a. 53,000

b. 5,300

c. 0.00053

d. 0.0053

_____122. Express 2.45×10^{-4} in standard form.

- a. 24,500
- b. 2,450,000
- c. 0.0000245
- d. 0.000245

_____123. How many meters are in two kilometers?

- a. 20
- b. 200
- c. 2,000
- d. 20,000

_____124. How many centimeters are in 5 meters?

- a. 5
- b. 50
- c. 500
- d. 5,000

_____125. How many millimeters are in 3.5 meters?

- a. 35
- b. 350
- c. 3,500
- d. 35,000

Geometry & Measurements

Key

1. C	26. B	51. C	76. C	101. C
2. A	27. A	52. A	77. B	102. D
3. C	28. B	53. A	78. B	103. A
4. A	29. B	54. B	79. D	104. A
5. D	30. C	55. A	80. B	105. B
6. B	31. B	56. B	81. C	106. C
7. A	32. D	57. C	82. B	107. B
8. A	33. C	58. A	83. A	108. C
9. B	34. C	59. D	84. B	109. D
10. C	35. D	60. A	85. A	110. B
11. C	36. C	61. D	86. B	111. B
12. C	37. A	62. B	87. D	112. D
13. A	38. C	63. C	88. A	113. C
14. B	39. C	64. C	89. C	114. C
15. B	40. B	65. D	90. B	115. B
16. A	41. B	66. C	91. C	116. A
17. B	42. C	67. A	92. A	117. C
18. D	43. A	68. B	93. C	118. A
19. D	44. D	69. A	94. A	119. A
20. C	45. A	70. C	95. D	120. C
21. D	46. B	71. C	96. C	121. B
22. B	47. A	72. A	97. B	122. D
23. D	48. B	73. A	98. D	123. C
24. A	49. D	74. B	99. A	124. C
25. B	50. C	75. C	100. B	125. C