

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. $C = \frac{5}{9}(F - 32)$
D. 40° D. 58°
- _____ 4. If the thermometer outside reads 15°C , what is the temperature in degrees F?
A. 59° B. 47° C. $F = \frac{9}{5}C + 32$
D. 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 the width of a 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 inch 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

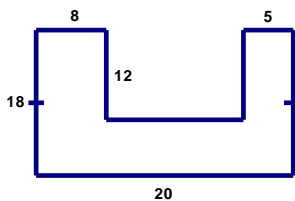
_____15. Which measurement best describes the area of a wall?

- 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?

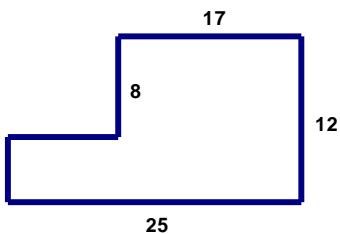
- A. perimeter B. area C. volume D. surface area

_____17. What is the perimeter of the given figure?



- A. 63 units B. 100 units
C. 88 units D. 70 units

_____18. What is the perimeter of the given figure?



- A. 52 units B. 62 units
C. 64 units D. 74 units

_____ 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 _____.

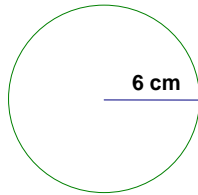
A. $10x^2$

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 $16\pi \text{ cm}^2$, then the radius is _____.

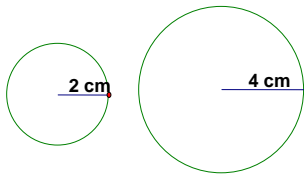
A. 4 cm

B. 16 cm

C. 8 cm

D. 256 cm

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



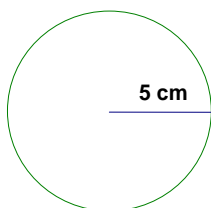
A. it doubles

B. it quadruples

C. it triples

D. its stays the same

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



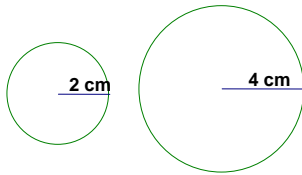
A. $5\pi \text{ cm}$

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?

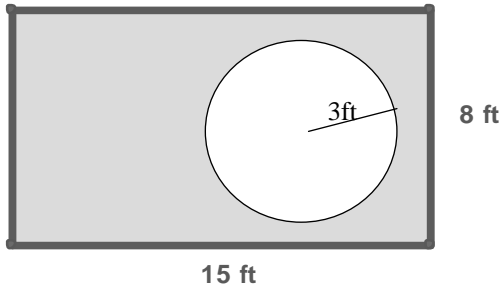


- A. it doubles
- B. it quadruples
- C. it triples
- D. its stays the same

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

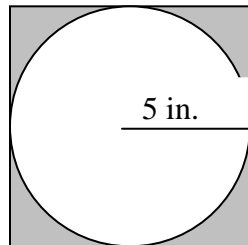
- A. $7\pi \text{ in.}$
- B. $14\pi \text{ in.}$
- C. $49\pi \text{ in.}$
- D. $\pi \text{ in.}$

_____29. What is the area of the shaded region?



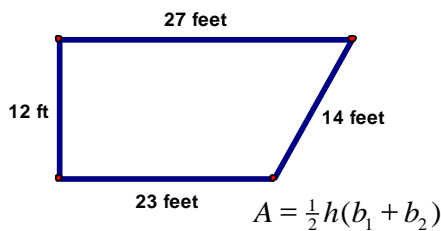
- A. 120ft^2
- B. $120 - 9\pi \text{ ft}^2$
- C. $120 - 3\pi \text{ ft}^2$
- D. $120 - 6\pi \text{ ft}^2$

_____30. What is the area of the shaded region?



- A. $5\pi \text{ in.}^2$
- B. $25\pi \text{ in.}^2$
- C. $100 - 25\pi \text{ in.}^2$
- D. $100 - 10\pi \text{ in.}^2$

_____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

_____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 cm
- B. 85 cm
- C. 21 cm
- D. 17 cm

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

- A. 12 in.^3
- B. 144 in.^3
- C. 1728 in.^3
- D. $20,736 \text{ in.}^3$

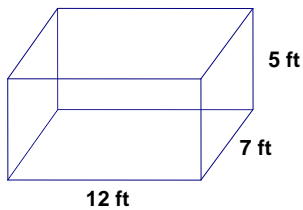
_____34. How many cubic feet are in a cubic yard?

- A. 9 ft^3 B. 3 ft^3 C. 27 ft^3 D. 81 ft^3

_____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

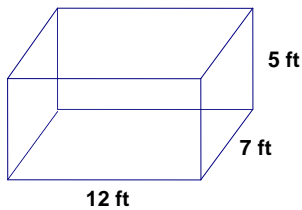
_____38. Find the volume of a cylinder given a radius of 4 in and a height of 5 in. (Formula: $V = \pi r^2 h$)

- 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: $SA = 2lw + 2lh + 2hw$)

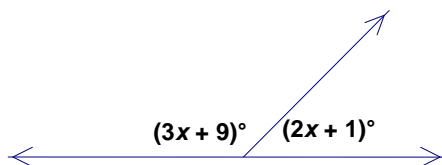


- A. 420 ft^2 B. 358 ft^2
C. 24 ft^2 D. 89 ft^2

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

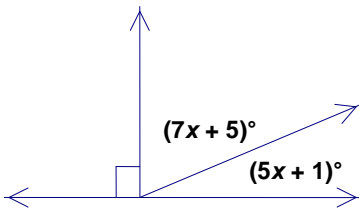
- A. 3.5 cm B. 4 cm
C. 16 cm D. 32 cm

_____42. Find the value of x .



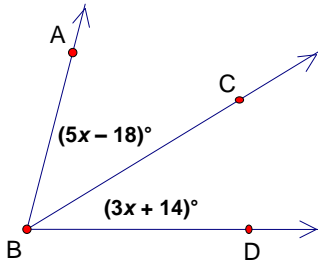
- A. -8 B. 16
C. 34 D. 170

43. Find the value of x .



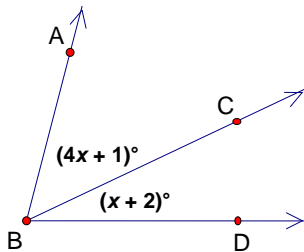
- A. 7
- B. -4
- C. 12
- D. 14

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

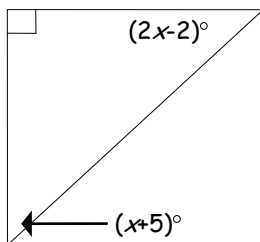
46. Two angles are supplementary. One angle is five times the measure of the other angle. What are the angle measures?

- 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?

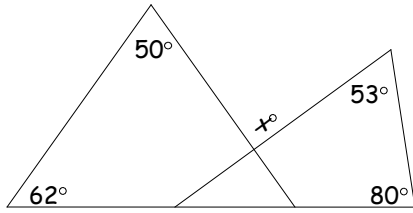
- A. 18° and 72°
- B. 36° and 54°
- C. 36° and 154°
- D. 20° and 80°

48. Find the value of x .



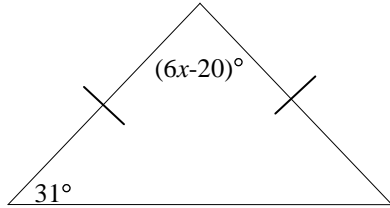
- A. 7
- B. 29
- C. 30
- D. 62.5

_____49. Find the value of x .



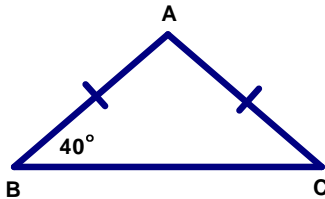
- A. 112
- B. 133
- C. 68
- D. 65

_____50. Find the value of x .



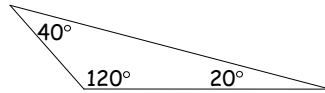
- A. 8.5
- B. 62
- C. 23
- D. 118

_____51. Find the measure of the vertex angle.



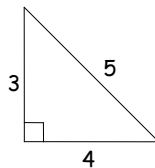
- A. 40°
- B. 80°
- C. 100°
- D. 180°

_____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 games B. 8 games C. 13 games D. 6 games

_____ 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 gallons B. 83 gallons C. 75 gallons D. 150 gallons

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

- A. congruent B. linear pairs
C. complementary D. supplementary

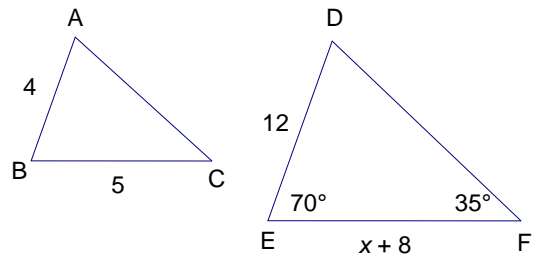
_____ 59. If two polygons are similar, then their corresponding sides are _____

- 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 $\triangle ABC \sim \triangle DEF$?

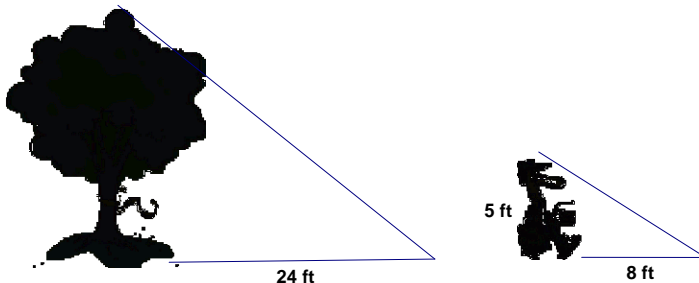
- A. 35° B. 70°
C. 85° D. 75°



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

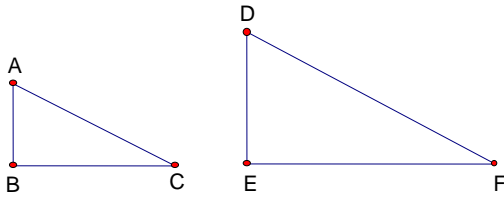
- A. 15 B. 13 C. 12 D. 7

_____ 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?



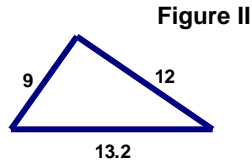
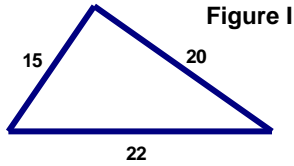
A. $\frac{AB}{DE} = \frac{BC}{DF}$

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?



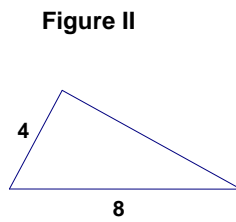
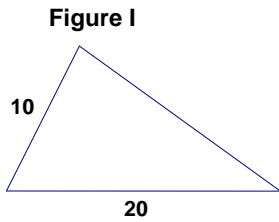
A. $\frac{3}{2}$

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

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

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

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



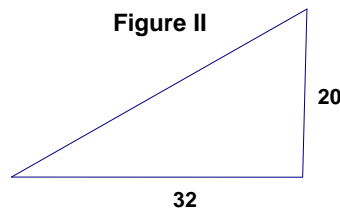
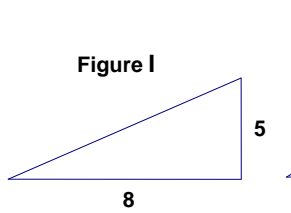
A. 12%

B. 40%

C. 50%

D. 60%

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



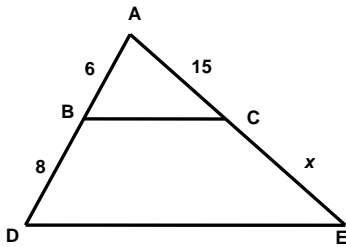
A. 75%

B. 25%

C. 300%

D. 250%

_____67. What is the value of x ?



Given
 $BC \parallel DE$

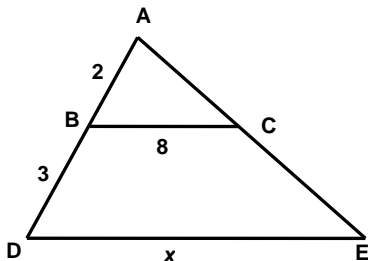
A. 20

B. 17

C. 35

D. 40

_____68. What is the value of x ?



Given
 $BC \parallel DE$

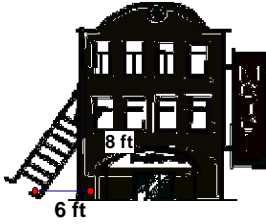
A. 12

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 5 ft. What is the height of the sail?

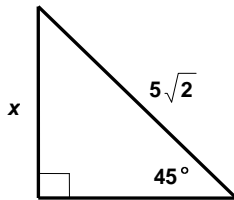


- A. 19 ft
B. 18 ft
C. 12 ft
D. 144 ft

- _____ 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

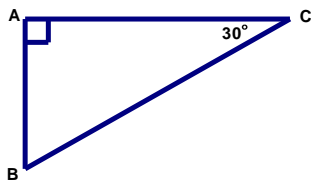
- _____ 73. The diagonal of a square is $11\sqrt{2}$. What is the length of each side of the square?

- A. 11
B. 44
C. 22
D. 88

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

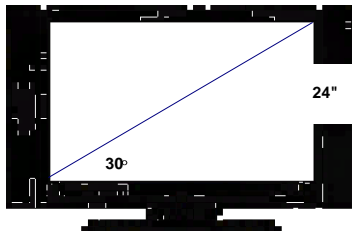
- A. 7
B. 28
C. 49
D. 14

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



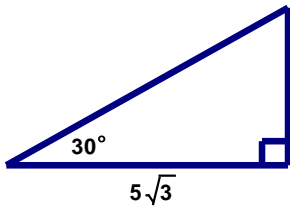
- A. \overline{BC} is $\sqrt{2}$ times as long as \overline{AB}
B. \overline{BC} is $\sqrt{3}$ times as long as \overline{AB}
C. \overline{BC} is 2 times as long as \overline{AB}
D. \overline{BC} is 3 times as long as \overline{AB}

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



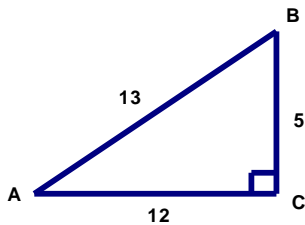
- A. 12"
- B. 24"
- C. 48"
- D. 8"

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



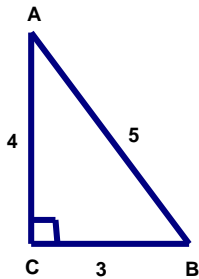
- A. 5
- B. 10
- C. $10\sqrt{3}$
- D. 15

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



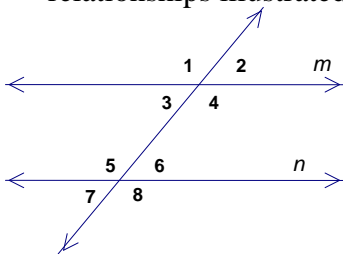
- A. $\frac{5}{12}$
- B. $\frac{12}{13}$
- C. $\frac{13}{12}$
- D. $\frac{12}{5}$

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



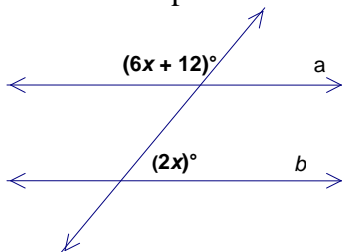
- A. $\frac{3}{4}$
- B. $\frac{3}{5}$
- C. $\frac{4}{3}$
- D. $\frac{4}{5}$

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



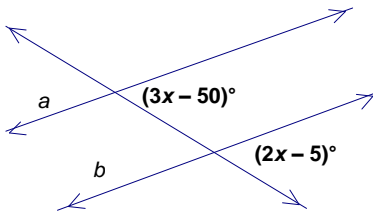
- A. $\angle 1 \cong \angle 2$
- B. $\angle 1 \cong \angle 8$
- C. $\angle 7 \cong \angle 4$
- D. $\angle 4 \cong \angle 6$

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



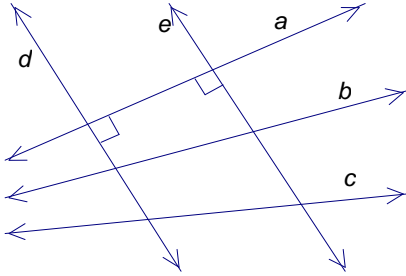
- A. -3
- B. 2.5
- C. 21
- D. 25

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?



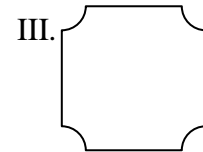
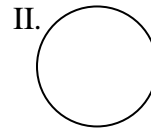
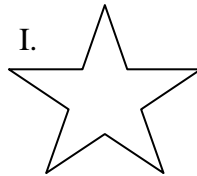
- A. d and e
- B. a and b
- C. b and c
- D. a and c

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

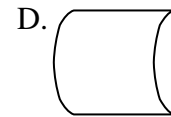
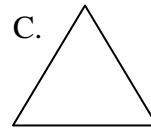
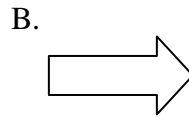
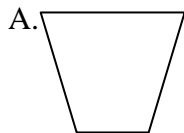
- A. nonagon
- B. heptagon
- C. decagon
- D. hexagon

85. Which figure is a polygon

- A. I only
- B. II only
- C. III only
- D. I and III



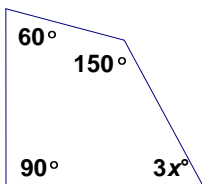
86. Which polygon is concave?



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

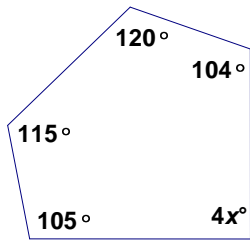
- A. 270°
- B. 180°
- C. 540°
- D. 360°

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?

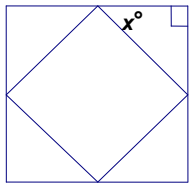
A. 30°

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 _____

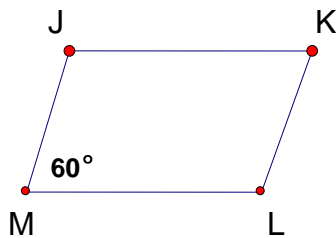
A. complementary

B. supplementary

C. congruent

D. A and B

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



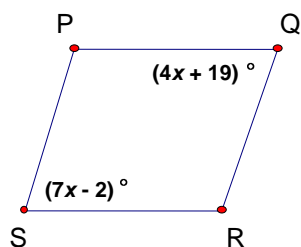
A. 60°

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

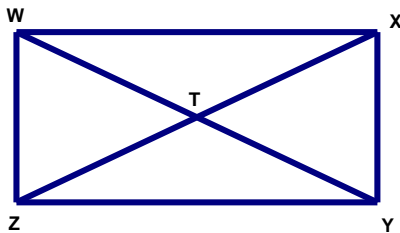
_____ 98. The diagonals of a rectangle are _____

- A. congruent
- B. perpendicular
- C. bisect each other
- D. A and C

_____ 99. The diagonals in a rhombus are _____.

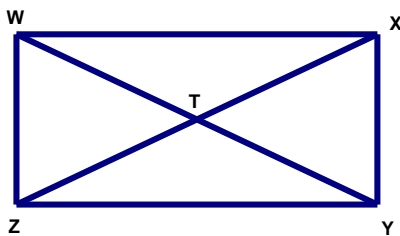
- A. perpendicular and bisect each other
- B. congruent and bisect each other
- C. parallel, congruent, and bisect each other
- D. congruent and don't bisect each other

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



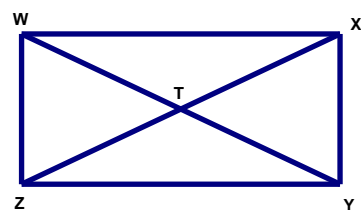
- A. 9
- B. 4
- C. 8.5
- D. 18

_____ 101. Given the rectangle $WXYZ$, if $m\angle ZYT = 30^\circ$, then what is the $m\angle XYT$?



- A. 30°
- B. 90°
- C. 60°
- D. 180°

_____ 102. Given the rectangle $WXYZ$, if $m\angle TYX = 50^\circ$, then what is the $m\angle YTX$?

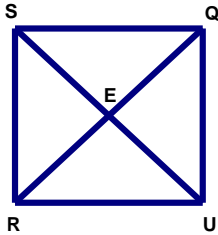


- A. 50°
- B. 100°
- C. 40°
- D. 80°

_____ 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°

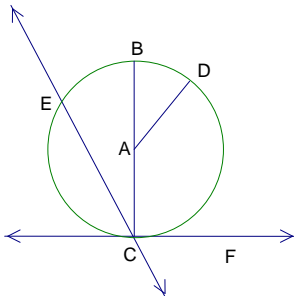
_____ 105. A segment whose endpoints are on a circle is a _____.

- A. tangent
- B. chord
- C. radius
- D. secant

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

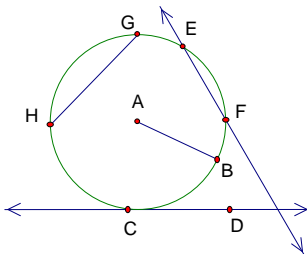
- A. chord
- B. secant
- C. tangent
- D. point of tangency

_____ 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

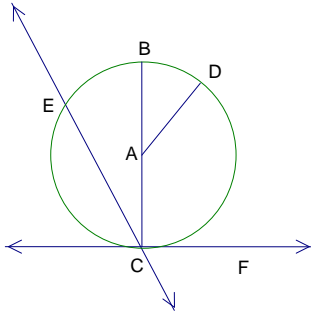
_____ 109. How many degrees are in a circle?

- A. 90°
- B. 180°
- C. 270°
- D. 360°

_____110. How many degrees are in a semicircle?

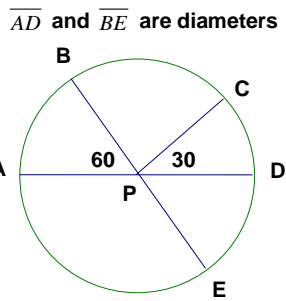
- A. 90° B. 180° C. 270° D. 360°

_____111. Which angle is a central angle?



- A. $\angle ECB$ B. $\angle BAD$
 C. $\angle ECF$ D. $\angle DAF$

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



- A. 30° B. 60°
 C. 90° D. 120°

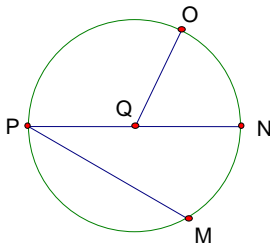
_____113. A round pizza is cut into 8 equally sized pieces. What is the measure of the central angle of each piece?

- 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?

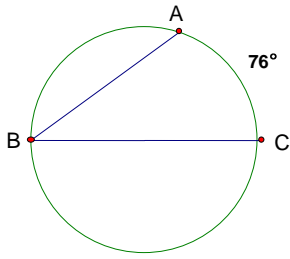
- A. 12° B. 15°
 C. 30°

_____115. Which angle is an inscribed angle?



- A. $\angle PQN$ B. $\angle MPN$
 C. $\angle OQN$ D. $\angle PQO$

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



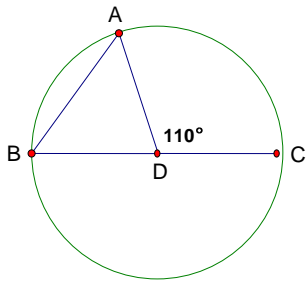
A. 38°

B. 76°

C. 152°

D. 180°

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



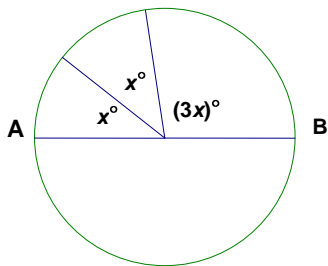
A. 22°

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. How many meters are in two kilometers?

A. 20

B. 200

C. 2,000

D. 20,000

_____ 120. How many centimeters are in 5 meters?

A. 5

B. 50

C. 500

D. 5,000

_____ 121. How many millimeters are in 3.5 meters?

A. 35

B. 350

C. 3,500

D. 35,000

Geometry & Measurements

Key

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