

End-of-Course Test

END-OF-COURSE TEST

1. A plane parallel to the base of a right cone intersects the cone. Which best describes the possible shape(s) of the intersection of the plane and the cone?

- A a circle or an ellipse
- B a circle or a triangle
- C a circle only
- D a circle or a point

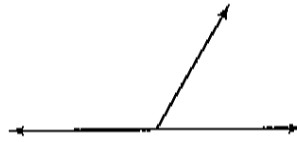
2. Find the converse of "If it is a shovel, then it is a tool."

- A If it is a tool, then it is a shovel.
- B If it is not a shovel, then it is not a tool.
- C If it is a shovel, then it is not a tool.
- D If it is a tool, then it is not a shovel.

3. Find the contrapositive of the following statement. If a figure has four sides, it is a quadrilateral.

- A If a figure is a quadrilateral, it does not have four sides.
- B If a figure does not have four sides, it is a quadrilateral.
- C If a figure is not a quadrilateral, it does not have four sides.
- D If a figure has four sides, it is not a quadrilateral.

4. Which best describes the angles shown?

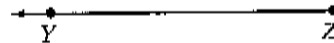


- A supplementary
- B complementary
- C corresponding
- D vertical

5. Given: All points on a circle with center C are equidistant from C , and points A and B are on a circle with center C . We conclude: Points A and B are equidistant from C . What type of reasoning did we employ?

- A deductive reasoning
- B inductive reasoning
- C converse reasoning
- D all of the above

6. Which of the following describes the figure below?

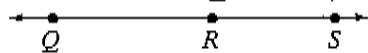


- A \overleftrightarrow{YZ}
- B \overline{YZ}
- C \overrightarrow{YZ}
- D \overrightarrow{ZY}

7. Which is a true statement?

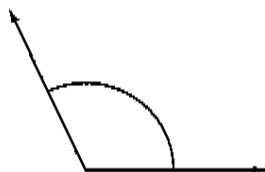
- A A rhombus is always a rectangle.
- B A square is sometimes a rectangle and sometimes a rhombus, but not always both.
- C A square is the only quadrilateral that is both a rhombus and a rectangle.
- D No rhombus is a rectangle.

8. If $RS = 34.8$ and $QS = 81.6$, find QR .



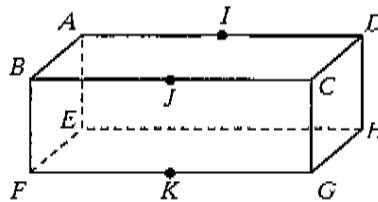
- A 46.8
- B 116.4
- C 34.8
- D 36.8

9. Estimate the measure of the angle.



- A about 180°
- B about 120°
- C about 100°
- D about 140°

10. Which of the following are coplanar?

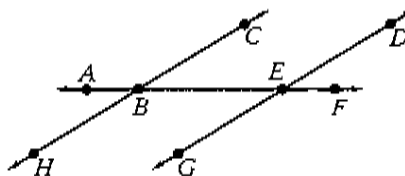


- A H, D, C, E
- B F, G, H, D
- C A, B, C, G
- D A, E, F, B

11. Classify the triangle with sides of length 23, 23, and 23.

- A isosceles
- B straight
- C scalene
- D equilateral

12. In the figure shown, $\overleftrightarrow{HC} \parallel \overleftrightarrow{GD}$ and $m\angle ABC = 150^\circ$. Which of the following statements is false?



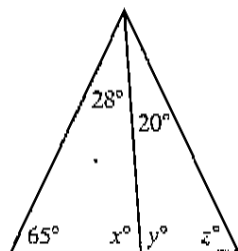
- A $\angle ABC$ and $\angle AED$ are corresponding angles.
- B $m\angle GEF = 30^\circ$
- C $\angle ABH$ and $\angle AEG$ are corresponding angles.
- D $m\angle DEF = 30^\circ$

13. Find the word or words that best complete the sentence.

Two lines that lie in parallel planes _____ intersect.

- A always
- B sometimes
- C never
- D not enough information to tell

14. Find the values of x , y , and z .

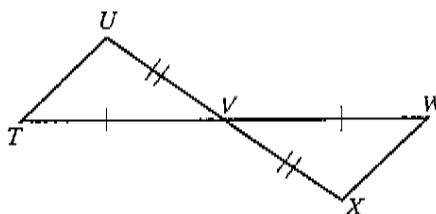


- A $x = 87, y = 93, z = 48$
- B $x = 93, y = 87, z = 48$
- C $x = 87, y = 93, z = 67$
- D $x = 93, y = 87, z = 67$

15. Find the measure of one of the interior angles of a regular polygon with ten sides.

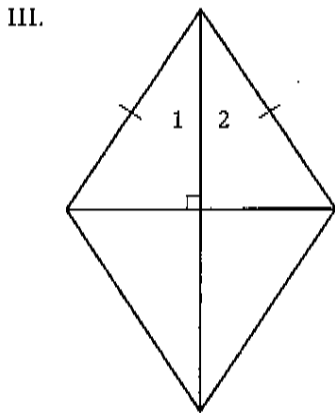
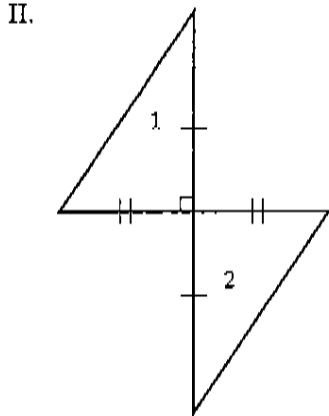
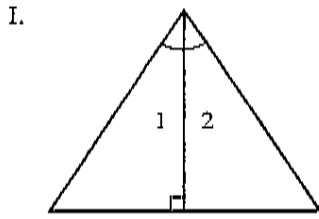
- A 144°
- B 36°
- C 18°
- D 162°

16. Refer to the figure shown. Given $\overline{TV} \cong \overline{VW}$ and $\overline{UV} \cong \overline{VX}$, which of the following statements is true?



- A $\triangle TUV \cong \triangle WXV$ by ASA.
- B $\triangle TUV \cong \triangle VWX$ by SAS.
- C $\triangle TUV \cong \triangle WXV$ by SAS.
- D $\triangle TUV \cong \triangle XWV$ by ASA.

17. In which of the following could you efficiently prove $\triangle 1 \cong \triangle 2$ using the HL Theorem?



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

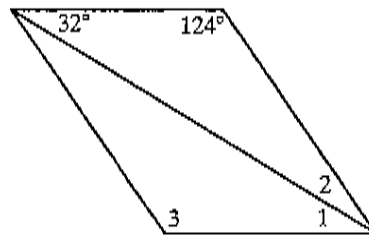
18. If $\triangle ABC \cong \triangle DEF$, $AB = 3$ cm, $m\angle ABC = 19^\circ$ and $m\angle DFE = 53^\circ$, which of the following statements is *false*?

- A $\overline{BC} \cong \overline{EF}$
- B $FD = 3$ cm
- C $\angle D \cong \angle A$
- D $m\angle CAB = 108^\circ$

19. One side of a parallelogram has a length of 1.4 feet while another side has a length of 36.3 feet. What is the perimeter of the parallelogram?

- A 39.1 ft
- B 50.82 ft
- C 75.4 ft
- D 37.7 ft

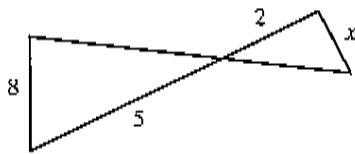
20. Find the measures of the numbered angles in the parallelogram.



- A $m\angle 1 = 32^\circ$; $m\angle 2 = 24^\circ$; $m\angle 3 = 124^\circ$
- B $m\angle 1 = 24^\circ$; $m\angle 2 = 32^\circ$; $m\angle 3 = 124^\circ$
- C $m\angle 1 = 16^\circ$; $m\angle 2 = 62^\circ$; $m\angle 3 = 148^\circ$
- D $m\angle 1 = 32^\circ$; $m\angle 2 = 16^\circ$; $m\angle 3 = 148^\circ$

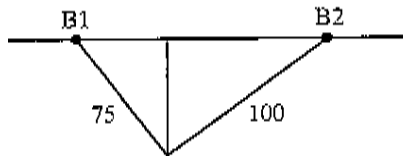
21. In rhombus $ABCD$, $AB = 13$ and $AC = 16$. Find BD to the nearest tenth.
- A 20.5
 - B 28.8
 - C 18.2
 - D 18.7

22. What is the value of x ?



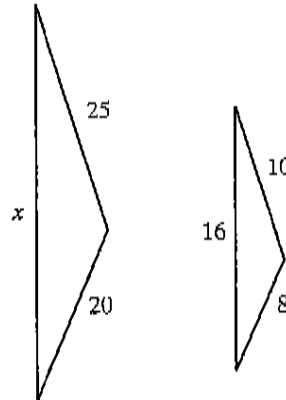
- A 3.25
- B 2
- C 5
- D cannot be determined

23. Dawn is laying computer cables in the ceiling of a large building. A 75-ft cable to office B1 and a 100-ft cable to office B2 meet at a right angle. Offices B1 and B2 are both on the same outer wall of the building. If Dawn lays one cable from where the first two cables meet directly to the outer wall, how far will it be from there to office B1?



- A 62 ft
- B 56 ft
- C 45 ft
- D 125 ft

24. The triangles below are similar. Find the length of x .



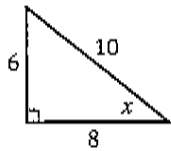
- A 40
- B 6.4
- C 42.5
- D 42

25. Triangles ABC and XYZ are similar with $\angle A \cong \angle X$, and $\angle B \cong \angle Y$. If AB , BC , and AC are 10 inches, 12 inches, and 13 inches, respectively, and XY is 14 inches, find XZ . (Answer to the nearest tenth.)

- A 16.8 in.
- B 8.6 in.
- C 18.2 in.
- D 9.3 in.

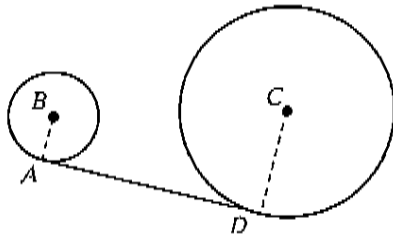
26. In $\triangle ABC$, J is on \overline{AB} , K is on \overline{BC} , and $\overline{JK} \parallel \overline{AC}$. Solve for x if $JB = 7$, $AJ = 18$, $BK = x + 3$, and $KC = 5x$.
- A 30
 B $\frac{17}{54}$
 C $\frac{54}{17}$
 D $\frac{1}{30}$
27. The area of a regular octagon is 25 cm^2 . What is the area of a regular octagon with sides six times as large?
- A 900 cm^2
 B 3750 cm^2
 C 835 cm^2
 D 150 cm^2
28. Find the measure, to the nearest tenth, of the diagonal of a rectangle with dimensions 17 cm by 4 cm.
- A 16.5 cm
 B 4.6 cm
 C 16.4 cm
 D 17.5 cm
29. A radio station is going to construct a 12-foot tower for a new antenna. The tower will be supported by 3 cables. One end of each cable is attached to the top of the tower; the other end of each is attached to the ground 16 feet from the base of the tower. Find the total length of the three cables.
- A 100 ft
 B 60 ft
 C 20 ft
 D 80 ft
30. In $\triangle ABC$, $\angle A$ is a right angle and $m\angle B = 45^\circ$. If $AB = 33$ feet, find AC .
- A 33 ft
 B 46.669 ft
 C 28.579 ft
 D 57.158 ft
31. Which of the following *cannot* be the lengths of a 30° - 60° - 90° triangle?
- A $\frac{9}{2}, 9, \frac{9\sqrt{3}}{2}$
 B 8, 16, $8\sqrt{3}$
 C $\frac{4}{3}, \frac{8}{3}, \frac{4\sqrt{3}}{3}$
 D $5, \frac{5}{2}, 5\sqrt{3}$

32. Use the diagram to find $\cos x$ as a fraction in simplest form.



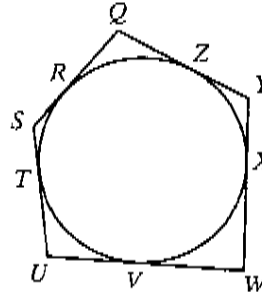
- A $\frac{4}{5}$
- B $1\frac{1}{3}$
- C $\frac{3}{4}$
- D $\frac{3}{5}$

33. \overline{AD} is tangent to both circles in the figure (not drawn to scale). If $BA = 8$, $AD = 25$, and $CD = 15$, find the length of \overline{BC} to the nearest tenth.



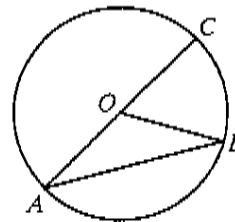
- A 26.0
- B 16.6
- C 26.2
- D 35.4

34. The circle is inscribed in the pentagon as shown (not drawn to scale). If $QZ = 11$, $YX = 6$, $XW = 10$, $UV = 20$, and $SU = 13$, find the perimeter of the pentagon.



- A 80
- B 120
- C 115
- D 85

35. Given: In $\odot O$, $m\widehat{BAC} = 298^\circ$. Find $m\angle A$.



- A 31°
- B 15.5°
- C 25°
- D 12.5°

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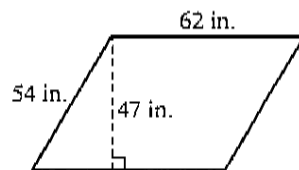
36. A chord 18 cm long contains the center of circle O . What is the radius of the circle to the nearest tenth?
- A not enough information provided
 - B 28.3 cm
 - C 18.0 cm
 - D 9.0 cm

37. A solar energy collector needs several 3 in. by 3 in. square panels to cover a rectangular area 17 ft by 5 ft. How many of the square panels are needed?
- A 113
 - B 765
 - C 1360
 - D 4080

38. Find the circumference of a circle whose radius is 8 inches. (Use $\pi \approx 3.14$)
- A 50.24 in.
 - B 0.785 in.
 - C 0.393 in.
 - D 25.12 in.

39. For a circle of radius 8 feet, find the arc length of a central angle of 6° .
- A $\frac{4}{5}\pi$ feet
 - B 48π feet
 - C $\frac{8}{15}\pi$ feet
 - D $\frac{4}{15}\pi$ feet

40. Find the area:



- A 3348 in.^2
- B 3131 in.^2
- C 2726 in.^2
- D 2914 in.^2

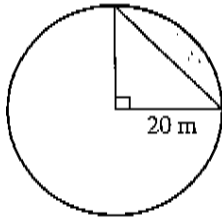
41. Compare the quantity in Column A with the quantity in Column B.

Column A
the area of a regular octagon with apothem 4 and side 4

Column B
the area of a regular hexagon with apothem 4 and side 4

- A The quantity in Column A is greater.
- B The quantity in Column B is greater.
- C The two quantities are equal.
- D The relationship cannot be determined on the basis of the information given.

42. Find the area of the shaded region. Use 3.14 for π .



- A 314 m^2
- B 428 m^2
- C 114 m^2
- D 200 m^2

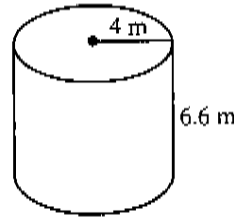
43. Which property justifies that $3(x - 4)$ is equivalent to $3x - 12$?

- A associative property
- B commutative property
- C distributive property
- D identity property

44. A rectangular prism is 12 cm long, 8 cm wide, and 6 cm high. Find the surface area of the prism.

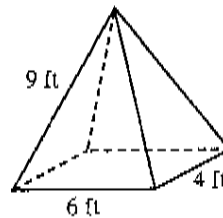
- A 432 cm^2
- B 576 cm^2
- C 52 cm^2
- D 26 cm^2

45. Find the surface area of the cylinder to the nearest square unit. (Use $\pi \approx 3.14$)



- A 42 m^2
- B 266 m^2
- C 26 m^2
- D 133 m^2

46. The pyramid shown has a rectangular base and faces that are isosceles triangles. Which measure BEST approximates the total surface area?



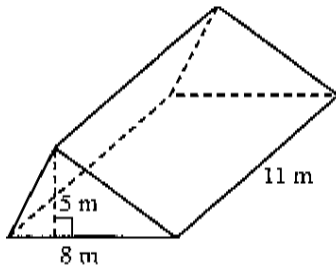
- A 114.0 ft^2
- B 72.0 ft^2
- C 407.3 ft^2
- D 110.0 ft^2

47. Find the surface area of a sphere that has a diameter of 10 centimeters. Use 3.14 for π and round your answer to the nearest centimeter.

- A 4187 cm^2
- B 523 cm^2
- C 314 cm^2
- D 1256 cm^2

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48. Find the volume of the triangular prism.

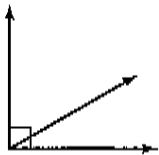


- A 440 m^3
 B 31 m^3
 C 220 m^3
 D 51 m^3

49. Find the volume of the cone that has a diameter of 6 feet and a height of 16 feet. (Use 3.14 for π .)

- A 452.16 ft^3
 B 150.72 ft^3
 C 301.44 ft^3
 D 602.88 ft^3

50. Which best describes the angles shown?

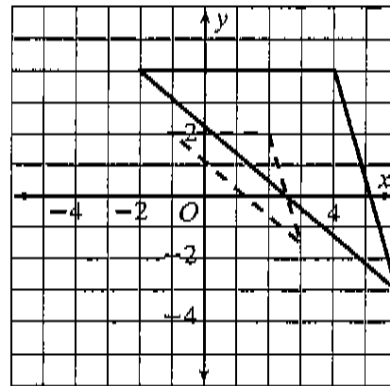


- A supplementary
 B complementary
 C corresponding
 D vertical

51. A design on a balloon is 2 cm wide when the balloon holds 62 cm^3 of air. How much must the balloon hold for the design to be 8 cm wide?

- A 992 cm^3
 B 3968 cm^3
 C 248 cm^3
 D 3879 cm^3

52. The dotted triangle is the image of the solid triangle. What is the scale factor?

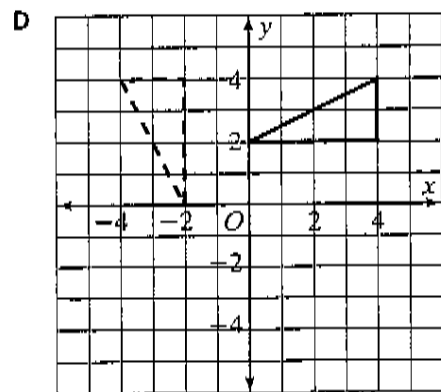
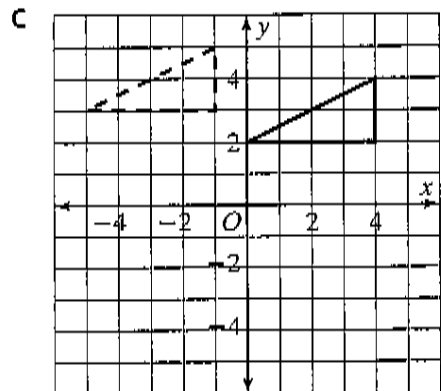
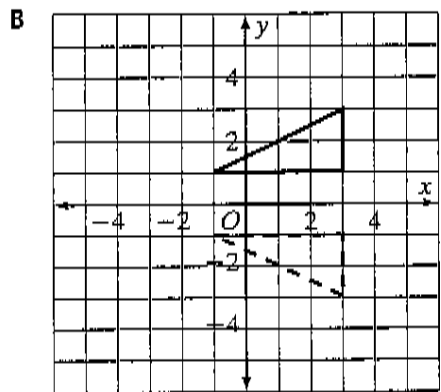
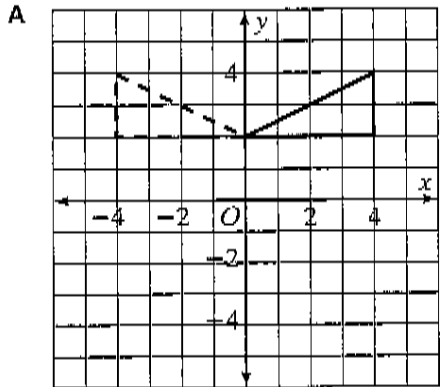


- A 2
 B $\frac{1}{2}$
 C 4
 D 3

53. Which of the following capital letters (if written simply) has at least one line of reflectional symmetry?

- A J
 B P
 C H
 D N

54. Which graph represents a translation?



55. Find the distance between points $P(1, -2)$ and $Q(0, 2)$.

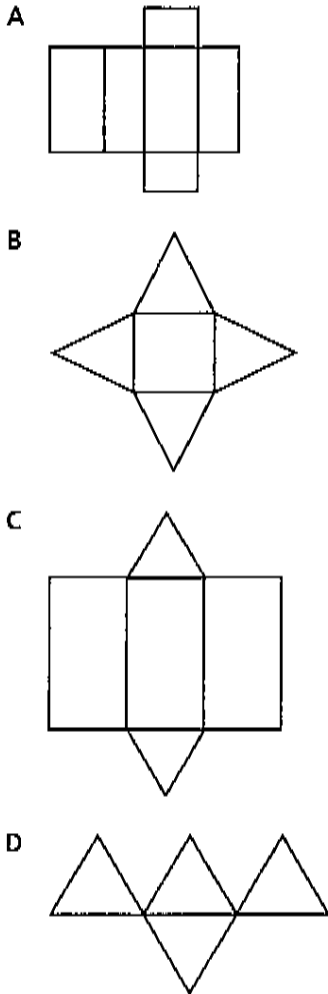
- A $\sqrt{15}$
- B $\sqrt{17}$
- C $\sqrt{13}$
- D $\sqrt{5}$

56. Find the coordinates of the midpoint of the segment connecting $H(5, -1)$ and $K(-9, 13)$.

- A $(-2, 6)$
- B $(14, 14)$
- C $(7, 7)$
- D $(-4, 12)$

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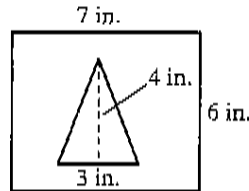
57. Which net represents the surfaces of a triangular prism?



58. To find the height of a pole, a surveyor moves 50 meters away from the base of the pole and then, with a transit 2 meters tall, measures the angle of elevation to the top of the pole to be 63° . What is the height of the pole? Round your answer to the nearest meter.

- A 98 m
- B 25 m
- C 27 m
- D 100 m

59. If a dart is thrown at the target shown, what is the probability that it lands in the triangle?



- A $\frac{1}{2}$
- B $\frac{5}{7}$
- C $\frac{1}{7}$
- D 1

60. Willson Avenue is perpendicular to both Babcock Street and Olive Street. Make a conclusion about the relationship between Babcock Street and Olive Street.

- A Babcock Street and Olive Street are perpendicular.
- B Babcock Street and Olive Street are parallel.
- C Babcock Street and Olive Street intersect.
- D Babcock Street and Olive Street form an acute angle.