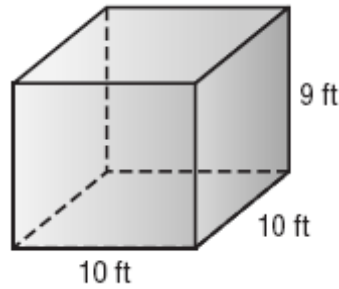


Geometry EOC Practice Test #2

Multiple Choice

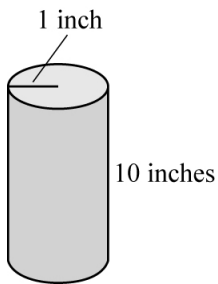
Identify the choice that best completes the statement or answers the question.

- _____ 1. Rebecca is loading medical supply boxes into a crate. Each supply box is 1.5 feet tall, 1 foot wide, and 2 feet deep. The crate is 9 feet high, 10 feet wide, and 10 feet deep.



What is the maximum number of supply boxes can she pack in this crate?

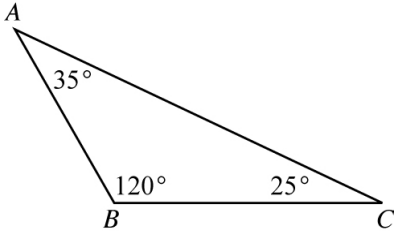
- a. 200 b. 300 c. 450 d. 600
- _____ 2. A local artist creates a piece with two glass cylinders filled with colored water.



The second cylinder has the same radius, but is twice as tall as the cylinder shown above. What is the relationship between the volume of the first cylinder and the second cylinder?

- a. The volume of the second cylinder is one-half the volume of the first cylinder.
b. The volume of the second cylinder is one-fourth the volume of the first cylinder.
c. The volume of the second cylinder is the same as the volume of the first cylinder.
d. The volume of the second cylinder is twice the volume of the first cylinder.

- _____ 3. Triangle ABC shows the measures of the three angles. Which expression gives the greatest value?

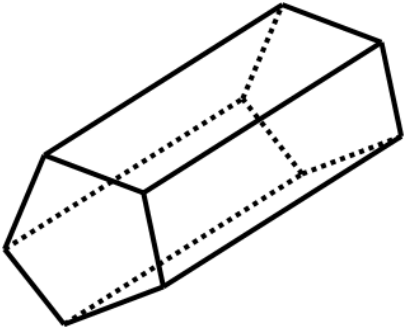


- a. $AB + BC$
b. $AC + BC$
c. $AB + AC$
d. $\frac{1}{2}AC$
- _____ 4. How do you write the inverse of the conditional statement below?

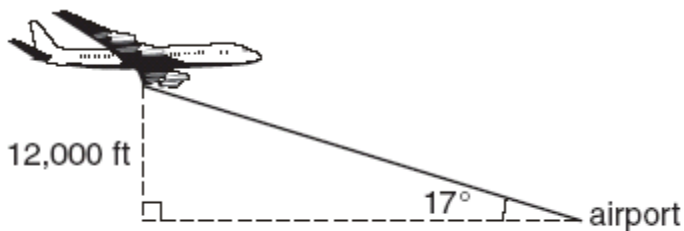
“If $m\angle 1 = 60^\circ$, then $\angle 1$ is acute.”

- a. If $m\angle 1 = 60^\circ$, then $\angle 1$ is not acute.
b. If $\angle 1$ is not acute, then $m\angle 1 \neq 60^\circ$.
c. If $\angle 1$ is acute, then $m\angle 1 = 60^\circ$.
d. If $m\angle 1 \neq 60^\circ$, then $\angle 1$ is not acute.
- _____ 5. A triangle is dilated by a scale factor of $\frac{1}{3}$ to produce a new triangle. Which of the following best describes the relationship between the perimeter of the original triangle compared to the perimeter of the new triangle?
- a. The perimeter of the new triangle is $\frac{1}{3}$ that of the original triangle.
b. The perimeter of the new triangle is 3 times that of the original triangle.
c. The perimeter of the new triangle is $\frac{1}{9}$ that of the original triangle.
d. The perimeter of the new triangle is 9 times that of the original triangle.

- _____ 6. How many vertices does the polyhedron below have?



- a. 8
b. 10
c. 12
d. 20
- _____ 7. Which type of transformation does NOT necessarily result in the image being congruent to the preimage?
- a. dilation
b. reflection
c. rotation
d. translation
- _____ 8. A plane is flying at an altitude of 12,000 feet and is preparing to land at a nearby airport. The angle from the airport to the plane is 17° .

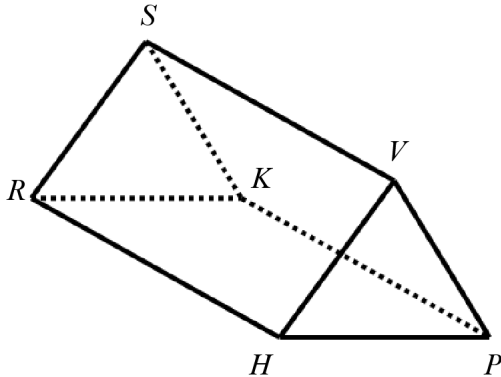


Note: Figure not drawn to scale.

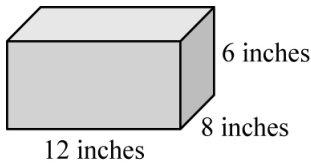
To the nearest tenth of a foot, how far is the airport from the plane?

- a. 3,668.8 feet
b. 12,548.3 feet
c. 39,250.2 feet
d. 41,043.6 feet

- _____ 9. Which of the following correctly shows the number of faces, edges, and vertices of the triangular prism below?



- a. 5 faces, 6 edges, 9 vertices
 b. 5 faces, 9 edges, 6 vertices
 c. 6 faces, 9 edges, 5 vertices
 d. 6 faces, 10 edges, 6 vertices
- _____ 10. Martin built a box to store his video games. The box is shown below.



Martin needed more storage and built a similar box that was one-third of each the length, the width, and the height of the first box. By what factor does the change in dimension between the two boxes affect the surface area?

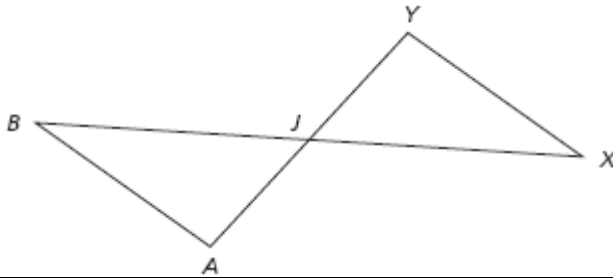
- a. The surface area of the smaller box is $\frac{1}{3}$ of the surface area of the larger box.
 b. The surface area of the smaller box is $\frac{1}{6}$ of the surface area of the larger box.
 c. The surface area of the smaller box is $\frac{1}{9}$ of the surface area of the larger box.
 d. The surface area of the smaller box is $\frac{2}{3}$ of the surface area of the larger box.

11. Use the diagram below and the information given. What is the last reason in the proof?

Given: $\overline{AB} \parallel \overline{XY}$

\overline{AY} bisects \overline{XB} .

Prove: $\overline{AB} \cong \overline{XY}$



Statement	Reason
1. $\overline{AB} \parallel \overline{XY}$	1. Given
2. $\angle B \cong \angle X$ $\angle A \cong \angle Y$	2. Alternate interior angles of parallel lines are congruent.
3. \overline{AY} bisects \overline{XB} .	3. Given
4. $\overline{JB} \cong \overline{JX}$	4. Definition of segment bisector
5. $\triangle AJB \cong \triangle YJK$	5. AAS
6. $\overline{AB} \cong \overline{YX}$	6. ?

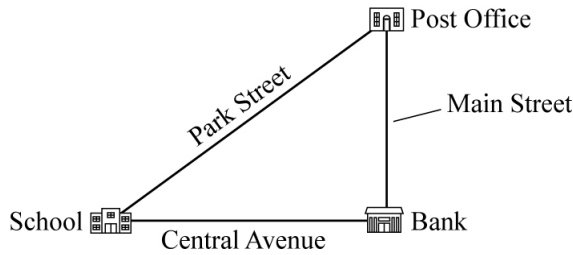
a. SAS

c. SSS

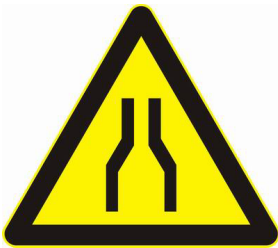
b. ASA

d. CPCTC

- _____ 12. Maria drew the map shown below. On the map, Main Street is perpendicular to Central Avenue. Which of the following is a valid conjecture Maria can make based on the map below?



- The distance from the School to the Post Office is less than the distance from the School to the Bank.
 - The distance from the Post Office to the Bank is less than the distance from the School to the Bank.
 - The distance from the School to the Post Office is less than the distance from the Post Office to the Bank.
 - The distance from the Post Office to the Bank is less than the distance from the Post Office to the School.
- _____ 13. Which type of transformation could have been used to create the symmetric traffic sign shown below?



- dilation
- reflection
- rotation
- translation

_____ 14. What is the converse and the truth value of the converse of the following conditional statement?

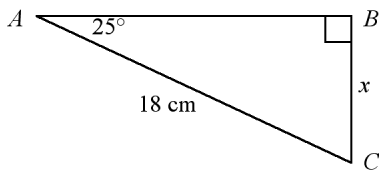
If an angle is a right angle, then its measure is 90° .

- a. If an angle is NOT a right angle, then its measure is 90° .
False
- b. If an angle is NOT a right angle, then its measure is NOT 90° .
True
- c. If an angle has a measure of 90° , then it is a right angle.
False
- d. If an angle has a measure of 90° , then it is a right angle.
True

_____ 15. What are the center and radius of the circle with equation $(x + 2)^2 + (y + 10)^2 = 25$?

- a. center $(-2, -10)$; $r = 5$
- b. center $(2, 10)$; $r = 5$
- c. center $(-2, -10)$; $r = 10$
- d. center $(10, 2)$; $r = 25$

_____ 16. What is the approximate value of x in the diagram below?



- a. 7.6 centimeters
- b. 8.4 centimeters
- c. 16.3 centimeters
- d. 19.9 centimeters

_____ 17. Helena creates two similar rectangles using exactly 100 cm of string. The smaller rectangle is 4 cm by 6 cm. What are the dimensions of the larger rectangle?

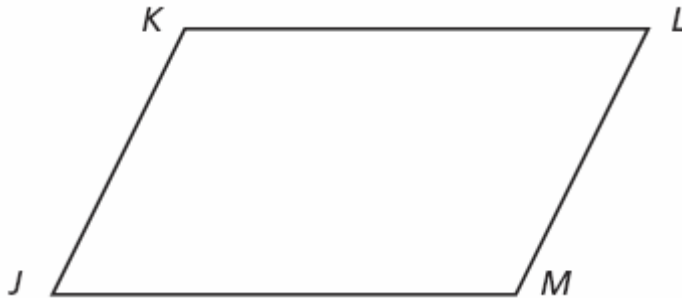
- a. 18 cm by 22 cm
- b. 16 cm by 24 cm
- c. 20 cm by 30 cm
- d. 36 cm by 54 cm

- _____ 18. Emily has a rectangular deck in her backyard with an area of 96 square feet. She wants to increase the size of the deck by doubling each dimension. What will the area of the deck be after she doubles the length and width?
- 144 square feet
 - 192 square feet
 - 226 square feet
 - 384 square feet

- _____ 19. What is the missing reason in the proof?

Given: $JKLM$ is a parallelogram.

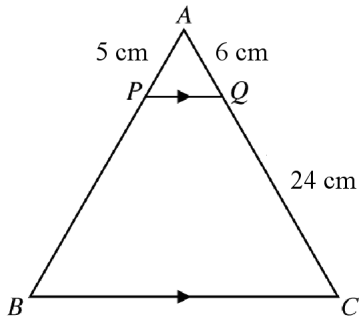
Prove: $\angle J \cong \angle L$



Statements	Reasons
1. $JKLM$ is a parallelogram.	1. Given
2. $\overline{KL} \parallel \overline{JM}$	2. Definition of a parallelogram
3. $\angle J$ and $\angle K$ are supplementary.	3. ?
4. $\overline{JK} \parallel \overline{ML}$	4. Definition of a parallelogram
5. $\angle L$ and $\angle K$ are supplementary.	5. (Same as step 3.)
6. $\angle J \cong \angle L$	6. $\angle J$ and $\angle L$ are supplements of the same angle.

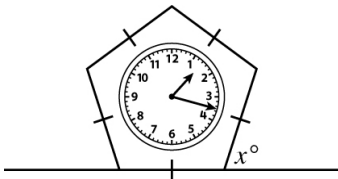
- Same-Side Interior Angles Theorem
- Corresponding Angles Theorem
- Same-Side Exterior Angles Theorem
- Triangle Angle-Sum Theorem

_____ 24. In triangle ABC , \overline{PQ} is parallel to \overline{BC} . What is the length of \overline{PB} , in centimeters?



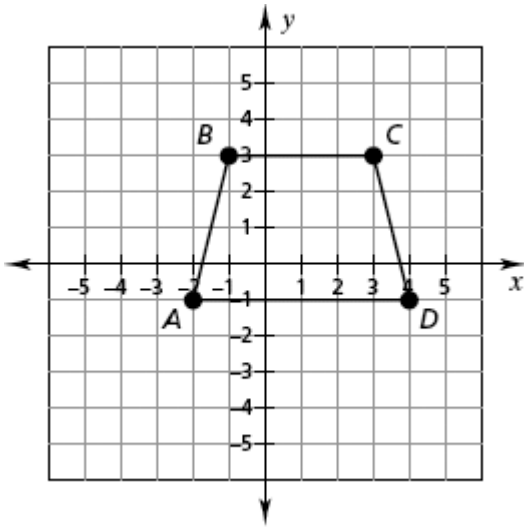
- a. 10 centimeters
- b. 12 centimeters
- c. 20 centimeters
- d. 30 centimeters

_____ 25. The clock below is in the shape of a regular pentagon. What is x , the degree measure that the bottom side of the clock makes with the surface of the table?

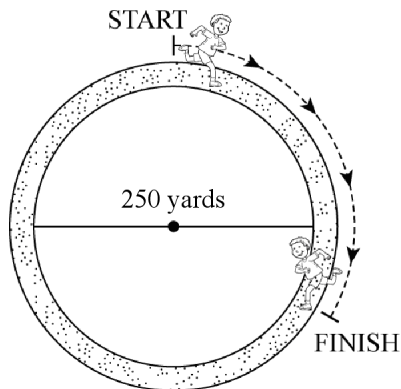


- a. 72°
- b. 108°
- c. 112°
- d. 148°

_____ 26. Which of the following would you NOT use to prove that quadrilateral $ABCD$ is an isosceles trapezoid?

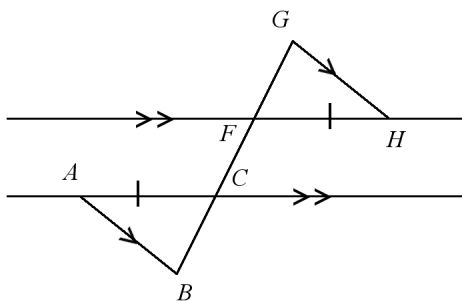


- The distance from A to B is equal to the distance from C to D .
 - The slope of segment BC is equal to the slope of segment AD .
 - $m\angle B + m\angle C = 180$
 - The slope of segment AB is NOT equal to the slope of segment CD .
- _____ 27. An athlete is running along a circular path that has a diameter of 250 yards. The arc traveled by the athlete is 120° . Using 3.14 for π , how many yards did the athlete run? Round the answer to the nearest yard.



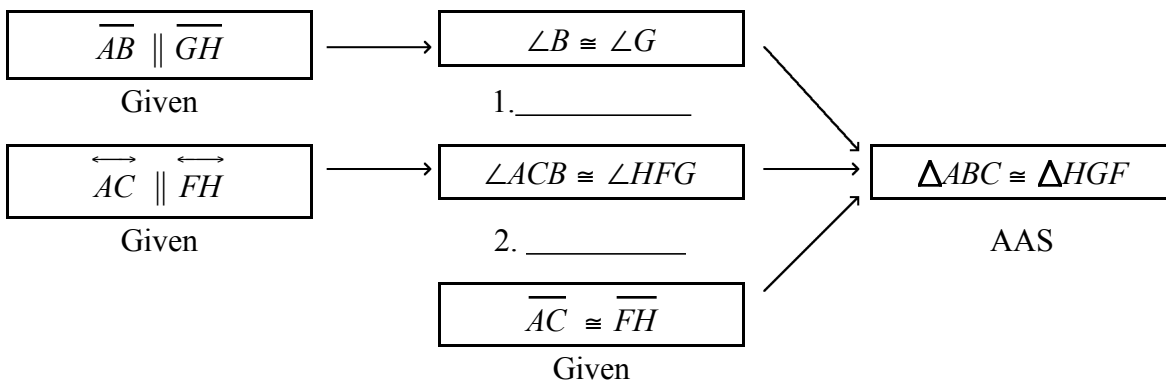
- 131 yards
- 262 yards
- 376 yards
- 545 yards

- _____ 28. **Given:** $\overline{AB} \parallel \overline{GH}$, $\overleftrightarrow{AC} \parallel \overleftrightarrow{FH}$, $\overline{AC} \cong \overline{FH}$
Prove: $\triangle ABC \cong \triangle HGF$



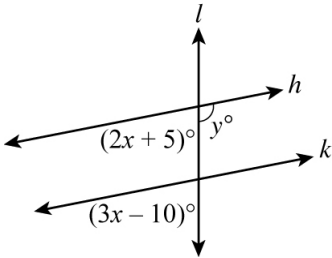
Complete the flowchart proof.

Proof:



- | | |
|---|---|
| <p>a. 1. Alternate Exterior Angles Theorem
2. Alternate Interior Angles Theorem</p> <p>b. 1. Alternate Interior Angles Theorem
2. Alternate Exterior Angles Theorem</p> | <p>c. 1. Alternate Exterior Angles Theorem
2. Alternate Exterior Angles Theorem</p> <p>d. 1. Alternate Interior Angles Theorem
2. Alternate Interior Angles Theorem</p> |
|---|---|
- _____ 29. Which statements are always logically equivalent?
- the converse of a conditional statement and contrapositive of a conditional statement
 - the conditional statement and its inverse
 - the conditional statement and its contrapositive
 - the inverse and contrapositive of a conditional statement

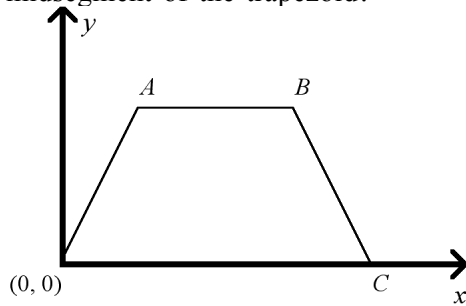
_____ 30. In the drawing below, line h is parallel to line k .



What is the value of y ?

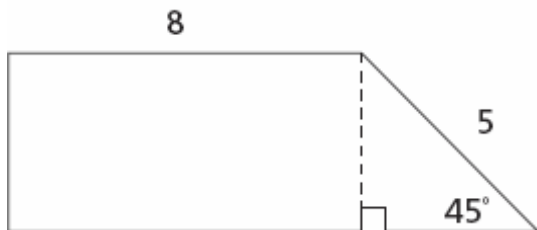
- a. 135 b. 15 c. 35 d. 145

_____ 31. The vertices of the trapezoid is represented by $A(4a, 4b)$, $B(4c, 4b)$, and $C(4d, 0)$. What is the midpoint of the midsegment of the trapezoid?



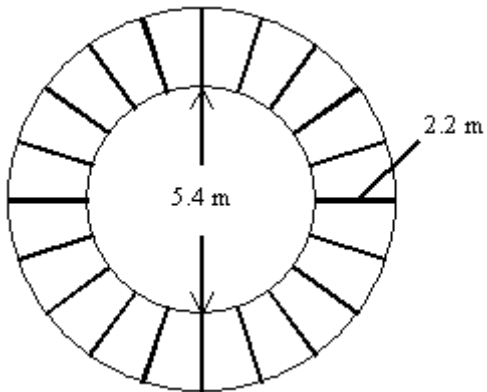
- a. $(a + c + d, b)$ c. $(a + c + d, 2b)$
 b. $(2c, 2b)$ d. $(2a + 2d, 2b)$

_____ 32. In order to determine the area of a trapezoid, you must know the height. What is the height of the trapezoid shown?

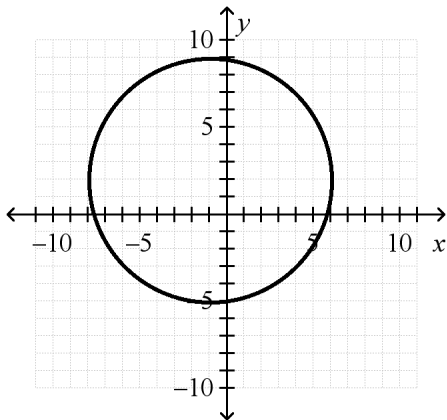


- a. 3 c. 5
 b. $\frac{5\sqrt{2}}{2}$ d. $5\sqrt{2}$

- _____ 33. The figure represents the overhead view of a deck surrounding a hot tub. What is the approximate area of the deck?

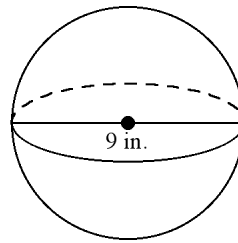
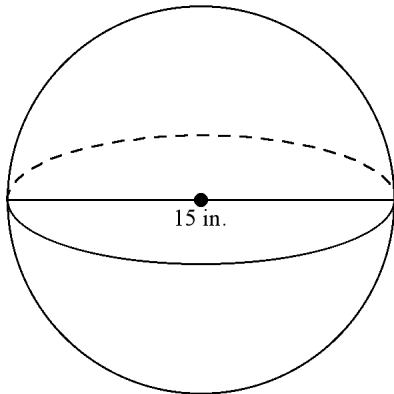


- a. 278.7 square meters b. 75.4 square meters c. 52.5 square meters d. 22.9 square meters
- _____ 34. Which of the following is the correct equation for the circle shown below?



- a. $(x - 1)^2 + (y + 2)^2 = 49$
 b. $(x + 1)^2 + (y - 2)^2 = 49$
 c. $(x - 1)^2 + (y + 2)^2 = 7$
 d. $(x + 1)^2 + (y - 2)^2 = 7$

____ 35. Find the difference in the surface area of the two spheres below.

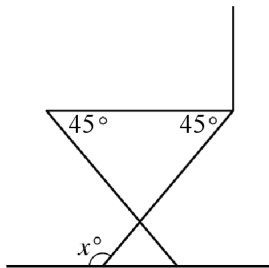


- a. 36π b. 144π c. 288π d. 576π

____ 36. Paola made a rectangular painting that has an area of 24 square feet. He now wants to make a similar painting that has dimensions that are $\frac{2}{3}$ the size of the original. What will the area of the new painting be?

- a. 36 square feet c. 12 square feet
 b. 16 square feet d. $10\frac{2}{3}$ square feet

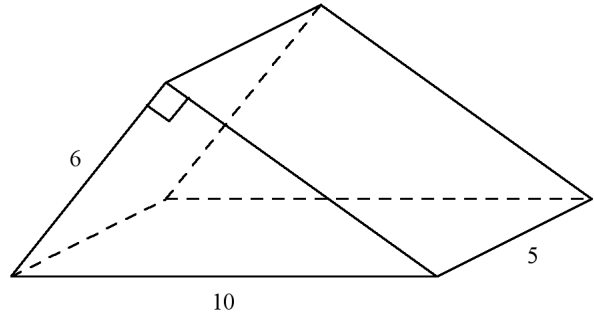
____ 37. Sarah is building a chair for her front porch. She cuts each leg so that they form a 45° angle with the base of the seat of the chair as shown in the diagram below.



What angle does the front of each leg make with the ground, x , in order to ensure that the seat of the chair is parallel with the ground?

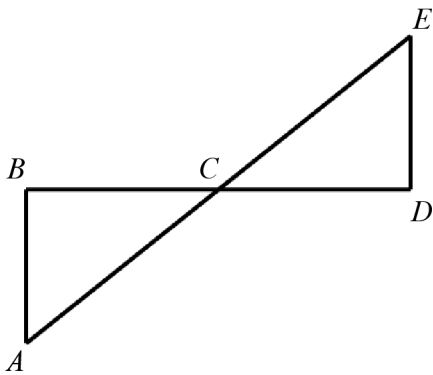
- a. 45° b. 90° c. 135° d. 145°

_____ 38. Find the surface area of the prism below. .



- a. 120 units²
- b. 144 units²
- c. 168 units²
- d. 180 units²

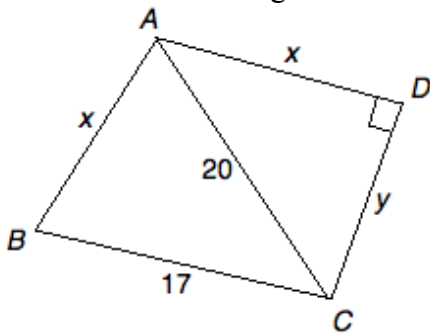
_____ 39. Given: $\overline{AB} \parallel \overline{DE}$.



Which can be used to prove $\triangle ABC \sim \triangle EDC$?

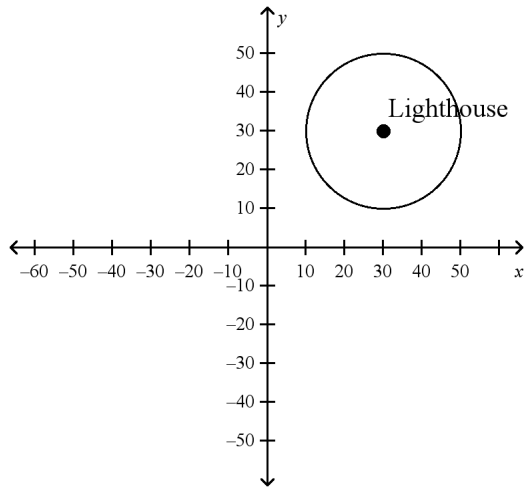
- a. AA Similarity Postulate
- b. SSS Similarity Theorem
- c. ASA Similarity Theorem
- d. SAS Similarity Theorem

_____ 40. Which of the following is NOT necessarily a true statement?

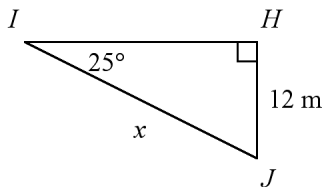


- a. $x < 20$
- b. $x < 17$
- c. $x^2 + y^2 = 400$
- d. $m\angle ABC > m\angle BAC$

- _____ 41. A lighthouse warns ships of impending danger and must be viewed from miles away. A particular lighthouse can be seen from 20 miles. Find the equation of the circle the lighthouse makes as it lights the water.



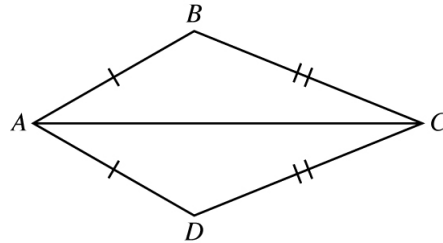
- a. $(x - 30)^2 - (y - 30)^2 = 400$
 b. $(x + 30)^2 + (y + 30)^2 = 400$
 c. $(x - 30)^2 + (y - 30)^2 = 400$
 d. $(x - 30)^2 + (y - 30)^2 = 20$
- _____ 42. Find the value of x .



- a. 10.9 meters
 b. 13.2 meters
 c. 25.7 meters
 d. 28.4 meters

_____ 43. In the proof below, what is the missing reason?

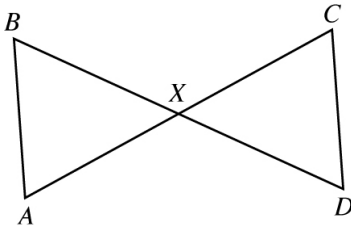
Given: $ABCD$ is a kite
Prove: $\angle B \cong \angle D$



Statement	Reason
1. $\overline{AB} \cong \overline{AD}$ and $\overline{BC} \cong \overline{CD}$	1. Definition of kite
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property of equality
3. $\triangle ABC \cong \triangle ADC$	3. SSS
4. $\angle B \cong \angle D$	4. ?

- a. SAS
- b. CPCTC
- c. SSS
- d. AAS

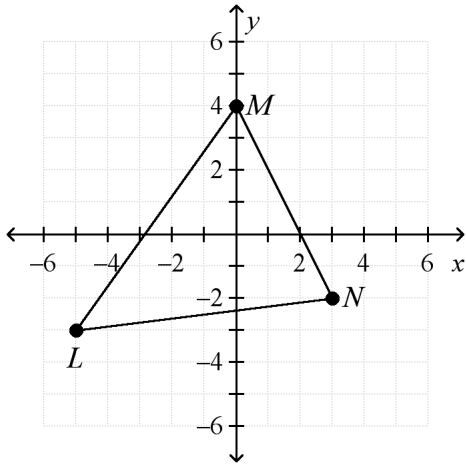
_____ 44. Given: $\angle A \cong \angle C$



Which of the following conjectures can **NOT** be made based on the diagram and the given information?

- a. $\triangle AXB \cong \triangle DCX$
- b. $\triangle AXB \sim \triangle CXD$
- c. $\overline{AB} \parallel \overline{CD}$
- d. $\angle AXB \cong \angle DXC$

___ 47. Triangle LMN has the vertices shown on the coordinate grid.



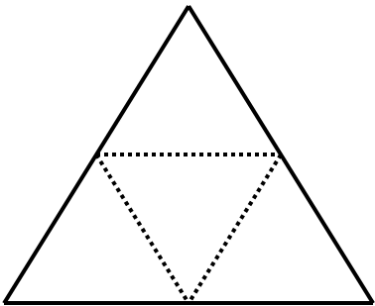
What is the length of \overline{LM} ?

- a. 7 units b. $\sqrt{61}$ units c. $6\sqrt{2}$ units d. $\sqrt{74}$ units

___ 48. Which conjecture is true?

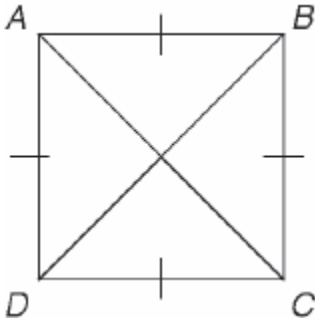
- a. An even number plus 3 is always even.
- b. An even number plus 3 is always prime.
- c. An even number plus 3 is always odd.
- d. A prime number plus 3 is always even.

___ 49. Which type of regular polyhedron is represented by the net below?



- a. dodecahedron
- b. octahedron
- c. tetrahedron
- d. hexahedron

_____ 50. Given $ABCD$ as marked, what additional information would help you to prove that $ABCD$ is a square?



- | | |
|--|--|
| a. $\overline{AC} \cong \overline{BD}$ | c. \overline{AC} and \overline{BD} bisect each other. |
| b. $\overline{AC} \perp \overline{BD}$ | d. \overline{AC} bisects $\angle DAB$ and $\angle BCD$. \overline{BD} bisects $\angle ABC$ and $\angle CDA$. |

_____ 51. Find the measure of each interior angle of a regular 45-gon.

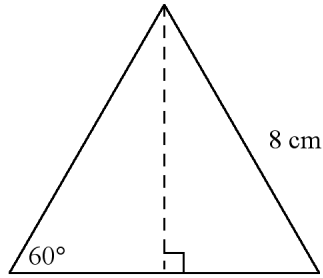
- | | | | |
|----------------|----------------|----------------|----------------|
| a. 176° | b. 164° | c. 172° | d. 188° |
|----------------|----------------|----------------|----------------|

_____ 52. What is the contrapositive of the statement below?

“If today is Friday, then tomorrow is Saturday.”

- If tomorrow is not Saturday, then today is not Friday.
- If today is Saturday, then tomorrow is not Friday.
- If tomorrow is Saturday, then today is Friday.
- If today is not Friday, then tomorrow is not Saturday.

_____ 53. What is the length of the altitude in equilateral triangle ABC ?

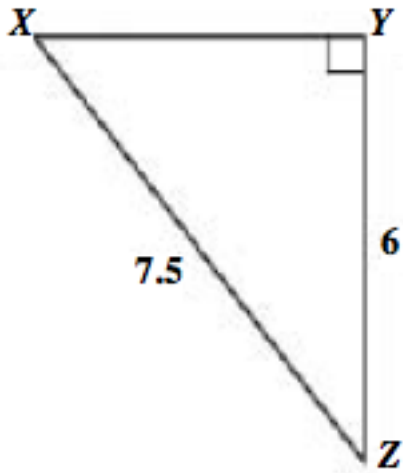


- a. 4 centimeters
b. $4\sqrt{2}$ centimeters
c. $4\sqrt{3}$ centimeters
d. $8\sqrt{2}$ centimeters
- _____ 54. A rectangle has a perimeter of 14 inches. A similar rectangle has a perimeter of 42 inches. The area of the smaller rectangle is 10 square inches. What is the area of the larger rectangle?
- a. 3.3 square inches
b. 30.0 square inches
c. 38.0 square inches
d. 90.0 square inches

Name: _____

ID: A

____ 55. In $\triangle XYZ$, what is the cosine ratio of $\angle X$?



- a. $\frac{9}{15}$
- b. $\frac{9}{12}$
- c. $\frac{12}{15}$
- d. $\frac{15}{12}$