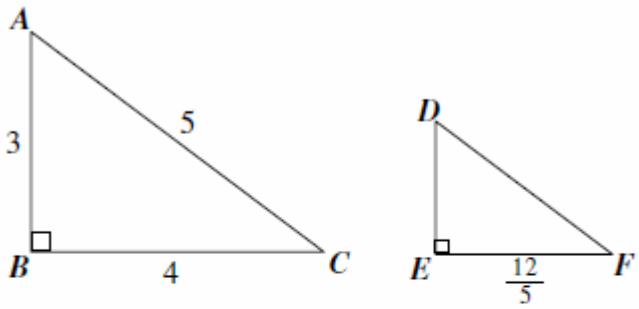
Geometry Quick Quiz

September 18,2019

1

The following triangles are similar.



What is the measure of $\overline{DE}$?

A $\frac{6}{5}$

B $\frac{8}{5}$

C $\frac{9}{5}$

D 2

2.

If the volume of a rectangular prism is 420.75 cubic centimeters and the area of the base is 49.5 square centimeters, what is the height of the prism in centimeters?

A 4.5
B 8.5
C 11.0
D 15.5

3.

A ziggurat is a kind of pyramid formed by layers of cubes. In this ziggurat design made from small identical cubes, each side of a layer is one unit larger than the layer above it.

How many of the small cubes would be needed to build the fifth ziggurat in this series?

A 25
B 30
C 55
D 91

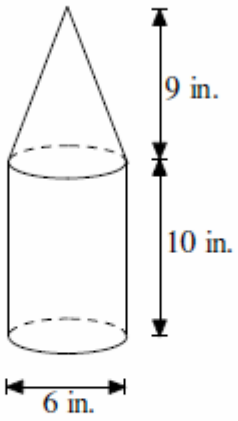
4.

Four points lie in a plane so that no three of them lie on a line. If lines are drawn connecting all pairs of these points, how many such lines are there?

A 4
B 6
C 8
D 12

5.

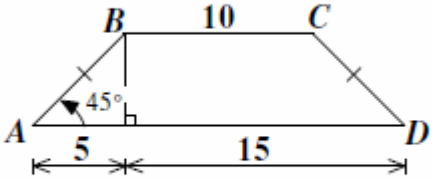
What is the volume of the figure below?



A 86π cubic inches
B 104π cubic inches
C 117π cubic inches
D 171π cubic inches

6.

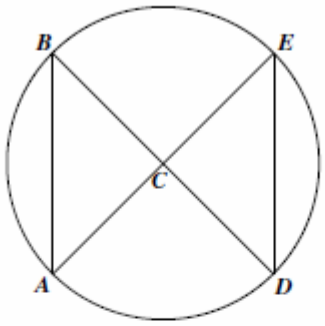
What is the area of isosceles trapezoid *ABCD*?



A 62.5 square units
B 75.0 square units
C 76.4 square units
D 150 square units

7.

Callie intends to show that $\Delta ACB \cong \Delta ECD$ given that C is the center of the circle and $\overset{\frown}{AB} \cong \overset{\frown}{DE}$.



First, $\overline{CB} \cong \overline{CD} \cong \overline{AC} \cong \overline{CE}$ because _____.

Second, $\angle ACB \cong \angle DCE$ because these are central angles that intersect congruent arcs.

Finally, $\Delta ACB \cong \Delta ECD$ because of the Side–Angle–Side postulate.

Which phrase belongs in the blank?

A the line segments are all radii of the same circle
B the line segments are all chords of the same circle
C the line segments are all tangents of the same circle
D the line segments are all skew to the same circle

8.

An open area at a local high school is in the shape of a quadrilateral. Two sidewalks crisscross this open area as diagonals of the quadrilateral. If the walkways cross at their midpoints and the walkways are equal in length, what is the shape of the open area?

A a parallelogram
B a rhombus
C a rectangle
D a trapezoid

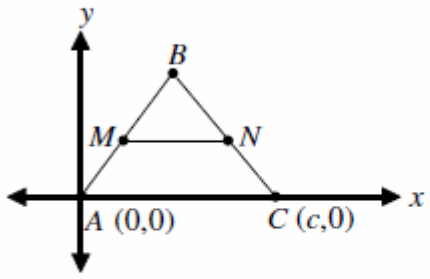
9.

What is the measure of an angle inscribed in a circle if the intercepted arc measures 72°?

A 18°
B 36°
C 72°
D 144°

10.

In the coordinate system below, to prove that segment $\overline{MN}$ is parallel to segment $\overline{AC}$, which of the following must be shown?



A The length of $\overline{MN}$ is half the length of $\overline{AC}$.

B The slope of $\overline{MN}$ equals the slope of $\overline{AC}$.

C The length of $\overline{AM}$ equals the length of $\overline{MB}$.

D The length of $\overline{AM}$ equals the length of $\overline{CN}$.

BONUS

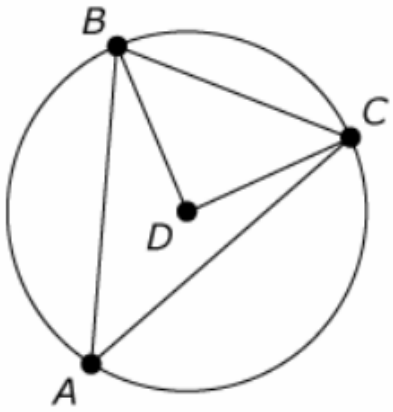
11.

The figure shows ΔABC inscribed in circle D.

If $m\angle CBD = 44°$, find $m\angle BAC$.

Enter your answer in the box.

[ ] degrees



Converse, Inverse, Contrapositive

Given an if-then statement "if p, then q," we can create three related statements:

A conditional statement consists of two parts, a hypothesis in the "if" clause and a conclusion in the "then" clause. For instance, "If it rains, then they cancel school."
"It rains" is the hypothesis.
"They cancel school" is the conclusion.

To form the converse of the conditional statement, interchange the hypothesis and the conclusion.
The converse of *"If it rains, then they cancel school"* is *"If they cancel school, then it rains."*

To form the inverse of the conditional statement, take the negation of both the hypothesis and the conclusion.
The inverse of *"If it rains, then they cancel school"* is *"If it does not rain, then they do not cancel school."*

To form the contrapositive of the conditional statement, interchange the hypothesis and the conclusion of the inverse statement.
The contrapositive of *"If it rains, then they cancel school"* is *"If they do not cancel school, then it does not rain."*

Statement	If p, then q.
Converse	If q, then p.
Inverse	If not p, then not q.
Contrapositive	If not q, then not p.

Taken from:

https://www.varsitytutors.com/hotmath/hotmath_help/topics/converse-inverse-contrapositive