Use this space for computations.

11 Square *MATH* has a side length of 7 inches. Which three-dimensional object will be formed by continuously rotating square *MATH* around side $\overline{AT}$?

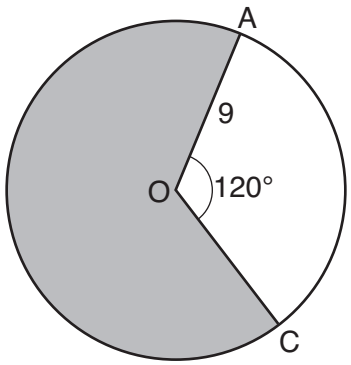
(1) a right cone with a base diameter of 7 inches

(2) a right cylinder with a diameter of 7 inches

(3) a right cone with a base radius of 7 inches

(4) a right cylinder with a radius of 7 inches

12 Circle *O* with a radius of 9 is drawn below. The measure of central angle *AOC* is 120°.



What is the area of the shaded sector of circle *O*?

(1) 6π

(2) 12π

(3) 27π

(4) 54π

13 In quadrilateral *QRST*, diagonals $\overline{QS}$ and $\overline{RT}$ intersect at *M*. Which statement would always prove quadrilateral *QRST* is a parallelogram?

(1) $\angle TQR$ and $\angle QRS$ are supplementary.

(2) $\overline{QM} \cong \overline{SM}$ and $\overline{QT} \cong \overline{RS}$

(3) $\overline{QR} \cong \overline{TS}$ and $\overline{QT} \cong \overline{RS}$

(4) $\overline{QR} \cong \overline{TS}$ and $\overline{QT} \parallel \overline{RS}$

Use this space for computations.

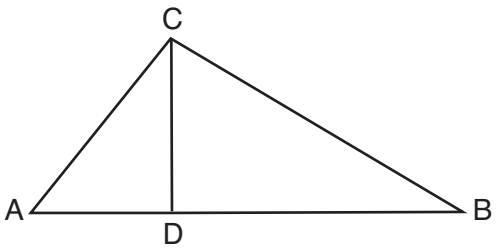
14 A standard-size golf ball has a diameter of 1.680 inches. The material used to make the golf ball weighs 0.6523 ounce per cubic inch. What is the weight, to the *nearest hundredth of an ounce*, of one golf ball?

(1) 1.10
(2) 1.62
(3) 2.48
(4) 3.81

15 Chelsea is sitting 8 feet from the foot of a tree. From where she is sitting, the angle of elevation of her line of sight to the top of the tree is 36°. If her line of sight starts 1.5 feet above ground, how tall is the tree, to the *nearest foot*?

(1) 8
(2) 7
(3) 6
(4) 4

16 In the diagram below of right triangle ABC, altitude $\overline{CD}$ intersects hypotenuse $\overline{AB}$ at D.

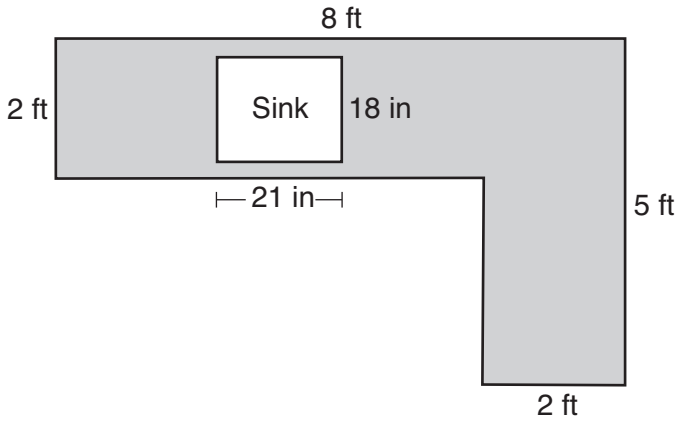


Which equation is always true?

(1) $\frac{AD}{AC} = \frac{CD}{BC}$
(2) $\frac{AD}{CD} = \frac{BD}{CD}$
(3) $\frac{AC}{CD} = \frac{BC}{CD}$
(4) $\frac{AD}{AC} = \frac{AC}{BD}$

Use this space for computations.

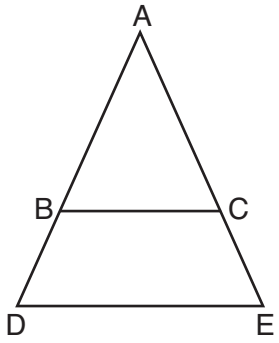
17 A countertop for a kitchen is modeled with the dimensions shown below. An 18-inch by 21-inch rectangle will be removed for the installation of the sink.



What is the area of the top of the installed countertop, to the *nearest square foot*?

(1) 26
(2) 23
(3) 22
(4) 19

18 In the diagram below, $\overline{BC}$ connects points B and C on the congruent sides of isosceles triangle ADE, such that $\triangle ABC$ is isosceles with vertex angle A.

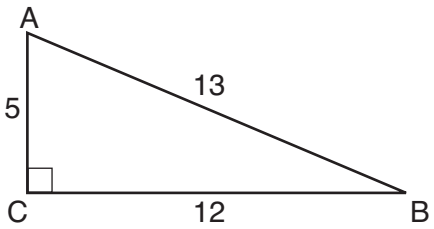


If $AB = 10$, $BD = 5$, and $DE = 12$, what is the length of $\overline{BC}$?

(1) 6
(2) 7
(3) 8
(4) 9

Use this space for computations.

19 In $\triangle ABC$ below, angle C is a right angle.



Which statement must be true?

(1) $\sin A = \cos B$

(2) $\sin A = \tan B$

(3) $\sin B = \tan A$

(4) $\sin B = \cos B$

20 In right triangle RST, altitude $\overline{TV}$ is drawn to hypotenuse $\overline{RS}$. If $RV = 12$ and $RT = 18$, what is the length of $\overline{SV}$?

(1) $6\sqrt{5}$

(2) 15

(3) $6\sqrt{6}$

(4) 27

21 What is the volume, in cubic centimeters, of a right square pyramid with base edges that are 64 cm long and a slant height of 40 cm?

(1) 8192.0

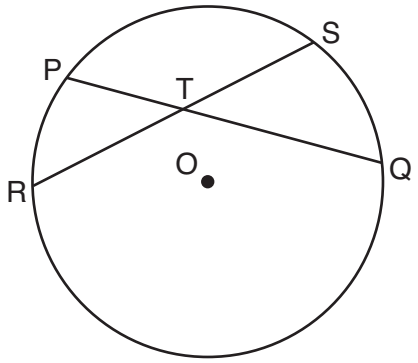
(2) $13{,}653.\overline{3}$

(3) 32,768.0

(4) $54{,}613.\overline{3}$

Use this space for computations.

22 In the diagram below, chords $\overline{PQ}$ and $\overline{RS}$ of circle O intersect at T.



Which relationship must always be true?

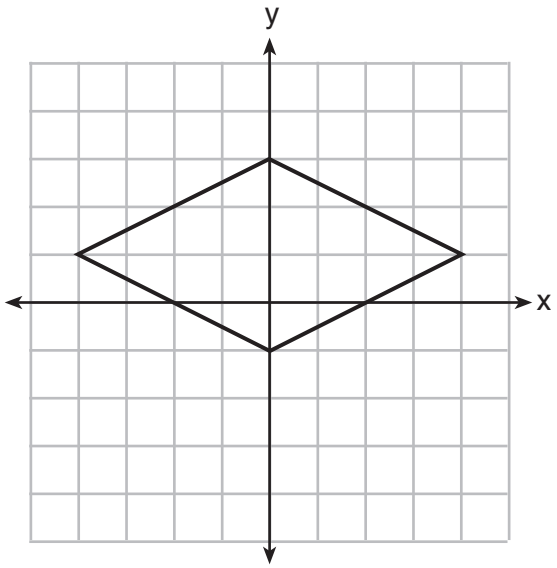
(1) $RT = TQ$

(2) $RT = TS$

(3) $RT + TS = PT + TQ$

(4) $RT \times TS = PT \times TQ$

23 A rhombus is graphed on the set of axes below.



Which transformation would carry the rhombus onto itself?

(1) 180° rotation counterclockwise about the origin

(2) reflection over the line $y = \frac{1}{2}x + 1$

(3) reflection over the line $y = 0$

(4) reflection over the line $x = 0$

Use this space for computations.

24 A 15-foot ladder leans against a wall and makes an angle of 65° with the ground. What is the horizontal distance from the wall to the base of the ladder, to the *nearest tenth of a foot*?

(1) 6.3
(2) 7.0
(3) 12.9
(4) 13.6