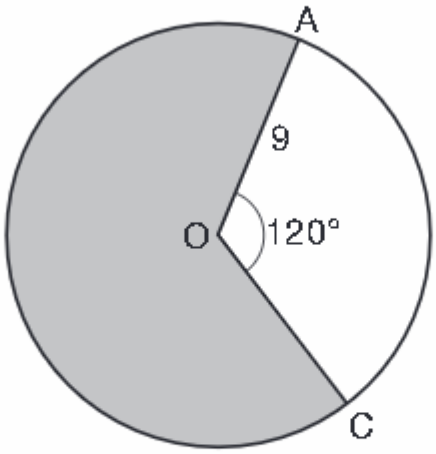
Geometry Quick Quiz

September 11,2019

1.

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

2.

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 $\overline{QT} \parallel \overline{RS}$

3.

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

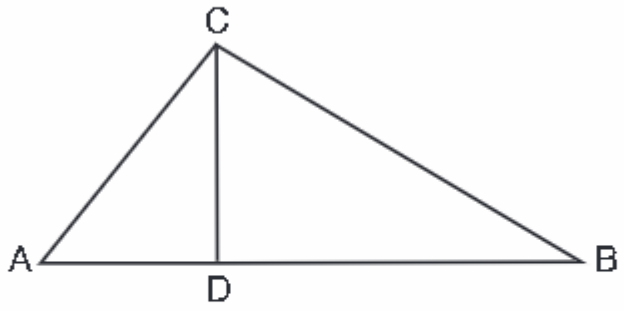
4.

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

5.

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

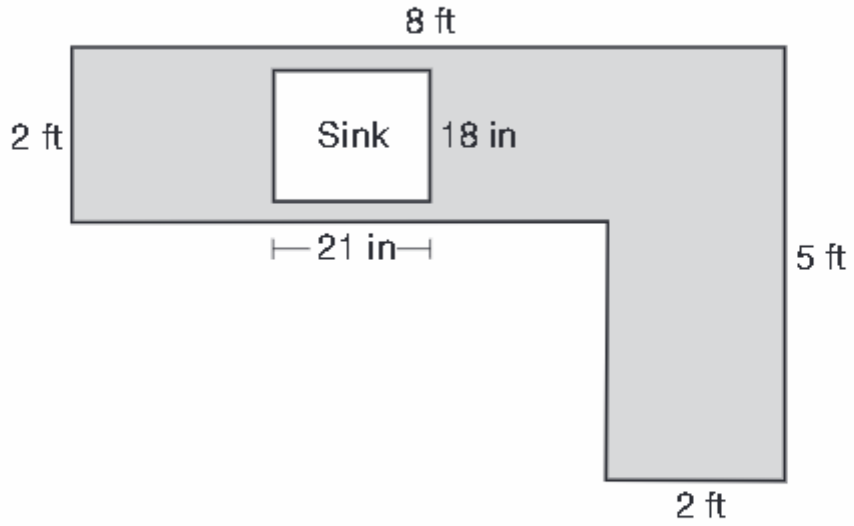


Which equation is always true?

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

6.

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

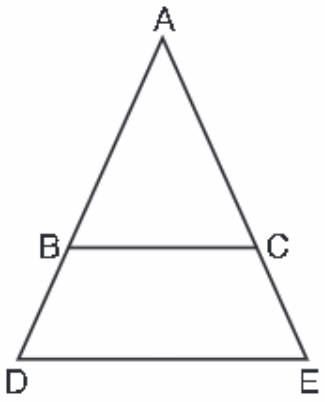
(2) 23

(3) 22

(4) 19

7.

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

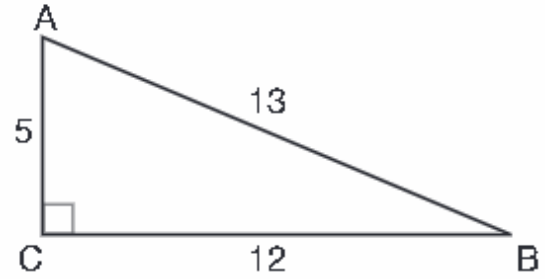
(2) 7

(3) 8

(4) 9

8.

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) $\sin B = \cos B$

9.

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

10.

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

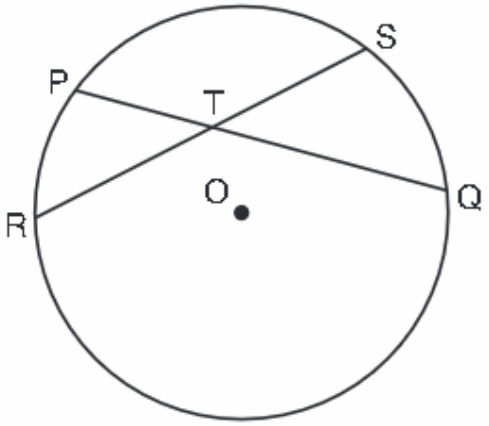
(2) $13{,}653.\overline{3}$

(3) 32,768.0

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

BONUS

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

Reference Sheet

High School Mathematics Assessment Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallons
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d \text{ or } C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$

Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Arithmetic Sequence	$a_n = a_1 + (n-1)d$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Geometric Series	$S_n = \frac{a_1 - a_1 r^n}{1-r}$ where $r \neq 1$
Radians	1 radian $= \frac{180}{\pi}$ degrees
Degrees	1 degree $= \frac{\pi}{180}$ radians