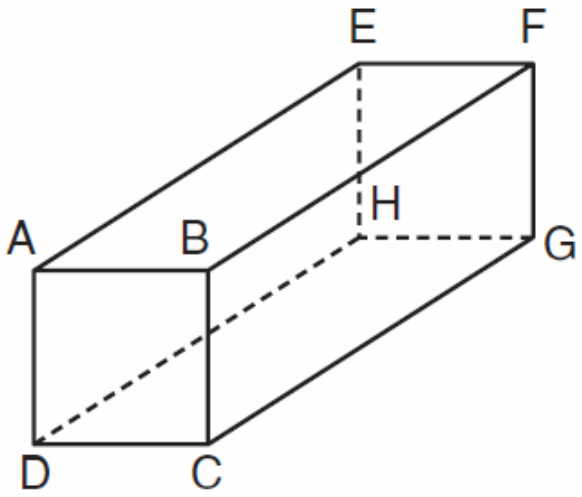
Geometry
Daily Quiz 10312019

Question 1.

The diagram below represents a rectangular solid.



Which statement must be true?

(1) $\overline{EH}$ and $\overline{BC}$ are coplanar.

(2) $\overline{FG}$ and $\overline{AB}$ are coplanar.

(3) $\overline{EH}$ and $\overline{AD}$ are skew.

(4) $\overline{FG}$ and $\overline{CG}$ are skew.

(Google is your best friend.)

Question 2.

In $\triangle RST$, $m\angle R = 58$ and $m\angle S = 73$. Which inequality is true?

(1) $RT < TS < RS$

(2) $RS < RT < TS$

(3) $RT < RS < TS$

(4) $RS < TS < RT$

Question 3.

The number of degrees in the sum of the interior angles of a pentagon is

(1) 72

(2) 360

(3) 540

(4) 720

Question 4.

What is the equation of a line passing through $(2,-1)$ and parallel to the line represented by the equation $y = 2x + 1$?

(1) $y = -\frac{1}{2}x$

(2) $y = -\frac{1}{2}x + 1$

(3) $y = 2x - 5$

(4) $y = 2x - 1$

Question 5.

The coordinates of the endpoints of $\overline{AB}$ are $A(0,0)$ and $B(0,6)$. The equation of the perpendicular bisector of $\overline{AB}$ is

(1) $x = 0$

(2) $x = 3$

(3) $y = 0$

(4) $y = 3$

Question 6.

In $\triangle ABC$, $AB = 5$ feet and $BC = 3$ feet. Which inequality represents all possible values for the length of $\overline{AC}$, in feet?

(1) $2 \leq AC \leq 8$

(2) $2 < AC < 8$

(3) $3 \leq AC \leq 7$

(4) $3 < AC < 7$

Question 7.

Determine whether the two lines represented by the equations $y = 2x + 3$ and $2y + x = 6$ are parallel, perpendicular, or neither.

Justify your response.

Question 8.

(It is assumed that the center of the rotation is the origin and that the rotation is counterclockwise.)

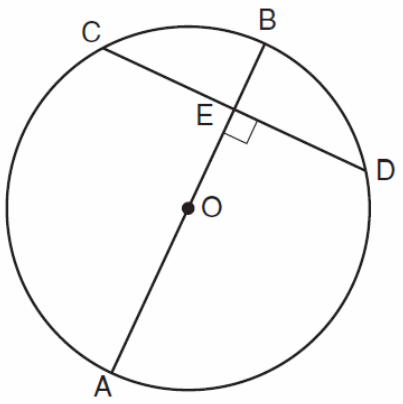
The coordinates of the vertices of $\triangle RST$ are $R(-2,3)$, $S(4,4)$, and $T(2,-2)$. Triangle $R'S'T'$ is the image of $\triangle RST$ after a rotation of 90° about the origin.

State the coordinates of the vertices of $\triangle R'S'T'$.

Question 9.

In the diagram below of circle O, diameter $\overline{AB}$ is perpendicular to chord $\overline{CD}$ at E.

If $AO = 10$ and $BE = 4$, find the length of $\overline{CE}$.



Question 10.

In $\triangle PQR$, $\angle PRQ$ is a right angle and $\overline{RT}$ is drawn perpendicular to hypotenuse $\overline{PQ}$. If $PT = x$, $RT = 6$, and $TQ = 4x$, what is the length of $\overline{PQ}$?

(1) 9

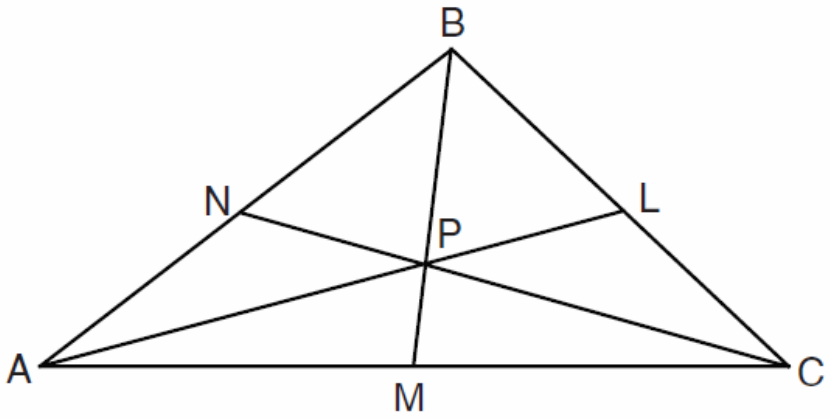
(2) 12

(3) 3

(4) 15

Bonus Question.

In the diagram below, point P is the centroid of $\triangle ABC$.



If $PM = 2x + 5$ and $BP = 7x + 4$, what is the length of $\overline{PM}$?

(1) 9

(2) 2

(3) 18

(4) 27

Fun Fact: The **Centroid** of a Triangle is the centre of the triangle that can be calculated as the point of intersection of all the three medians of a triangle. The median is a line drawn from the midpoint of a side to the opposite vertex.
The **centroid** separates all the medians of the triangle in the ratio 2:1.

PARCC
Partnership for Assessment of Readiness for College and Careers

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	$C = \pi d \ \ or \ \ C = 2\pi r$
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

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