River Ridge

Question # 1 Geometry Regional January

If one side of a rhombus is 25 and the longer diagonal is 40, then
A = the length of the shorter diagonal,
B = the area of the rhombus,
C = the length of the altitude.
Find A+B+C.

Question # 2 Geometry Regional January

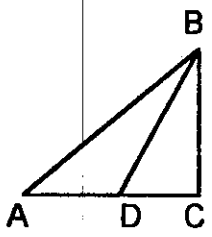
The lengths of the sides of a triangle are 4, 5, and 6. Each side is trisected and the points of division are joined to form a hexagon. What is the perimeter of the hexagon ?

Question # 3 Geometry Regional January

The bisectors of two angles of a triangle form a 123^{o} angle. What is the measure of the third angle of the triangle ?

Question # 4 Geometry Regional January

In the figure, ΔABC has a right angle at C, D is between A and C, $AD = DB$, $AB = 12$, $BC = 6$. Find the area of a square with side the same length as $\overline{DB}$.



Question # 5 | Geometry Regional | January

A ladder 20 feet long rests against a building and forms an angle of measure 45 degrees with the ground. The top of the ladder begins to slide down the building at a rate of $\frac{\sqrt{2}}{2}$ ft / min. How far is the foot of the ladder from the base of the building at the end of 6 minutes ?

Question # 6 | Geometry Regional | January

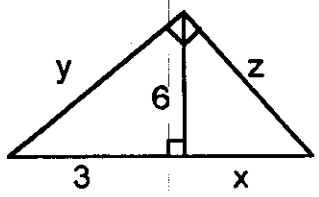
The angles of a triangle are in the ratio of 3:4:5. The shortest side of the triangle measures 10. Find the length of the altitude to the longest side.

Question # 7 | Geometry Regional | January

The ratio of the areas of two similar hexagons is 4:3. The sides of the larger hexagon are in ratio 6:5:5:4:4:3. What is the length of the longest side of the smaller hexagon if the perimeter of the larger hexagon is 54 ?

Question # 8 | Geometry Regional | January

Given the figure as marked, solve for x + y + z.

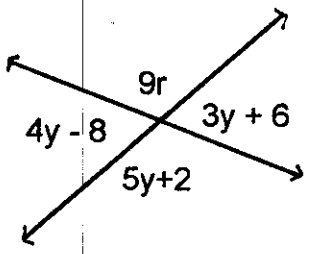


Question # 9 | Geometry Regional | January

In a triangle with side lengths 7, 10, and 15, find the length of the altitude to the longest side.

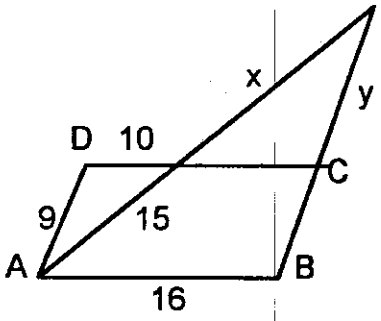
Question # 10 | Geometry Regional | January

The two intersecting lines form angles with measures as given in the diagram. Find the value of r.



Question # 11 | Geometry Regional | January

Find x + y. $\overline{DC} \parallel \overline{AB}$. DC = AB.



Question # 12 | Geometry Regional | January

A= sum of measures of exterior angles of a regular dodecagon
B= sum of measures of interior angles of a regular nonagon
C= number of sides of a regular decagon

Find $\dfrac{A - \dfrac{B}{C}}{3}$

Question # 13 Geometry Regional January

Given isosceles trapezoid ABCD, $\overline{AB} \parallel \overline{CD}$, perimeter $= 62$, base $\overline{AB}$ is six more than four times base $\overline{CD}$, $\overline{AD}$ is one more than twice the length of base $\overline{CD}$. Find the area of ABCD.

Question # 14 Geometry Regional January

Find the area of ΔABC if $m\angle A = 60°$, $AB = 15$, and $AC = 5$.

Question # 15 Geometry Regional January

Exactly how many revolutions does a wheel with a diameter of 14 cm make when it rolls 20 meters ?