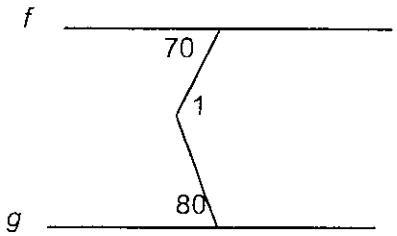
MIDDLETON HIGH SCHOOL
Geometry #1
January 10, 2004 Regional

In the diagram with measures of the angles 70 and 80 as shown, , find the $m\angle 1$ when $f \parallel g$.



MIDDLETON HIGH SCHOOL
Geometry #2
January 10, 2004 Regional

A = the $m\angle BAD$ in parallelogram ABCD when $m\angle BCD = 2x + 30$ and $m\angle CDA = 3x - 50$

B = the measure of the angle when the ratio of the complement of the angle to the supplement of the angle is 3:8

C = the measure of $\angle E$ in $\triangle DEF$ if the exterior angle at vertex F is 105, and $m\angle D = 60$

D = the measure of an angle when the measure of the angle is $2x + 20$ and its vertical angle has a measure of $5x - 34$

Find the value of $\frac{A}{C} + D - B$.

MIDDLETON HIGH SCHOOL
Geometry #3
January 10, 2004 Regional

A = the measure of the larger angle when one of two supplementary angles is 8 degrees larger than the other

B = the least number of distinct lines in a plane that can be drawn so that the total number of points of intersection is 6

C = the measure of the smaller angle when two complementary angles have measures $2x + 21$ and $3x - 26$

D = the measure of the 4^{th} angle in a quadrilateral when the average of the other three angles is 78

Find the value of $\frac{A + D}{B} + C$.

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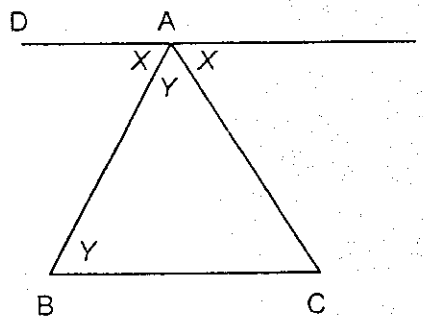
Geometry #4
January 10, 2004 Regional

In the diagram shown with angles of measure x and y, $\overline{DA} \parallel \overline{BC}$. Find $m\angle DAC$.



MIDDLETON HIGH SCHOOL
Geometry #5
January 10, 2004 Regional

Determine whether each statement is **always, sometimes** or **never** true. If the statement is **always** true assign it a value of **2**, if the statement is **sometimes** true assign it a value of **1**, if the statement is **never** true assign it a value of **0**. Find the sum of the values.

A. If a triangle is obtuse, it is isosceles.
B. The bisector of an angle of a scalene triangle is perpendicular to the opposite side.
C. If only one of the diagonals of a quadrilateral is the perpendicular bisector of the other, the quadrilateral is a kite.
D. Two parallel lines determine a plane.
E. Supplements of complementary angles are congruent.

MIDDLETON HIGH SCHOOL
Geometry #6
January 10, 2004 Regional

Given ABCD is a parallelogram. $AD = 2x - 4, CD = 3y + 5, BC = \frac{1}{2}x + 8, AB = y + 12$. Find the perimeter of ABCD.

MIDDLETON HIGH SCHOOL
Geometry #7
January 10, 2004 Regional

Choose the most descriptive name for each quadrilateral. Let Parallelogram be P, rhombus be R, rectangle be G, trapezoid be T, square be S, quadrilateral be Q and kite be K

A. a figure in which the diagonals are congruent and all sides are congruent

B. a figure in which diagonals bisect each other

C. a figure with only one pair of parallel sides

D. a figure in which diagonals are congruent and all angles are right angles

Take the first letter of each name and put those four letters in alphabetical order to submit your answer.

MIDDLETON HIGH SCHOOL
Geometry #8
January 10, 2004 Regional

Consider a regular hexagon ABCDEF with sides of length 8.

A = the total number of diagonals in the hexagon

B = the length of $\overline{FC}$

C = the length of $\overline{CE}$

D = the area of the hexagon

Find the value of $\frac{CD}{AB}$.

MIDDLETON HIGH SCHOOL
Geometry #9
January 10, 2004 Regional

A = the measure of one exterior angle of a regular pentagon

B = the number of sides of a regular polygon with an exterior angle of 60

C = the measure of an interior angle of a regular octagon

D = the number of sides of a dodecagon

Find the value of $\frac{A}{B+D}+C$

MIDDLETON HIGH SCHOOL
Geometry #10
January 10, 2004 Regional

In $\triangle ABC$, D is a point of $\overline{AB}$ and E is a point of $\overline{AC}$ such that $\overline{DE} \parallel \overline{BC}$.

A = the length of $\overline{AB}$ when $AE = 3, EC = 4, AD = 6$

B = the length of $\overline{BC}$ when $DE = 4, AD = 12, DB = 6$

C = the length of $\overline{BC}$ when $DE = 11$ and D and E are midpoints

D = the length of $\overline{CE}$ when $AE = 4, AB = 18, BD = 12$

Find the value of $C - \dfrac{A}{B + D}$.

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Geometry #11
January 10, 2004 Regional

A : Three of the exterior angles of a pentagon have measures 63, 75, and 58. If the other two exterior angles are congruent, what is the measure of one of these two angles?

B: In right triangle ABC, with right angle at C, $AC = 12, BC = 16$.
Find the length of the median to the hypotenuse.

C: In right triangle ABC, $m\angle A = 60$, hypotenuse $\overline{AB} = 12$.
Find the length of the altitude to the hypotenuse $\overline{AB}$.

Find the exact value of $A + B + C$.

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Geometry #12
January 10, 2004 Regional

In parallelogram ABCD, diagonals intersect at point O. If $AO = x + 2$, $OC = y + 4$, $DO = 3x - 4$, and $OB = 2y + 4$. Find the length of $\overline{AC}$.

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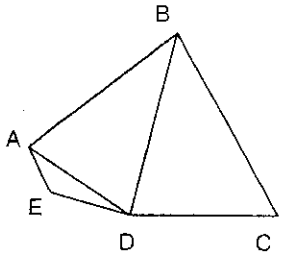
Geometry #13
January 10, 2004 Regional

In the following diagram, name the longest segment. Diagram not drawn to scale.
$m\angle DEA = 110, m\angle CDB = 60, m\angle DBC = 80, m\angle DBA = 40, m\angle BAD = 75, m\angle EDA = 40$



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Geometry #14
January 10, 2004 Regional

$\triangle ATC$ and $\triangle OGD$ with the given conditions.
Using each set of given conditions separately, determine if $\triangle ATC \cong \triangle OGD$. Every YES answer has a value of 3, every NO answer has a value of 1. Give the sum of these values.

A: $\angle C \cong \angle D, \angle A \cong \angle O, \angle T \cong \angle G$
B: $\angle C \cong \angle D, \angle A \cong \angle O, CA = DO$
C: $\overline{CA} \cong \overline{DO}, \overline{CT} \cong \overline{DG}, \overline{AT} \cong \overline{OG}$
D: $\angle C \cong \angle D, \angle A \cong \angle O, \overline{CT} \cong \overline{DG}$

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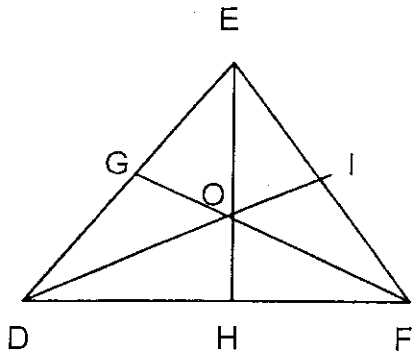
Geometry #15
January 10, 2004 Regional

O is the centroid of $\triangle DEF, \overline{EH} \perp \overline{DF}. DH = 9, DG = 7.5, OH = 4$



A = the length of $\overline{HF}$
B = the length of $\overline{EO}$
C = the ratio of $\overline{OI}$ to $\overline{OD}$ expressed as a fraction
D = the ratio of $\overline{OI}$ to $\overline{ID}$ expressed as a fraction

Find $A \bullet B \bullet C \bullet D$.