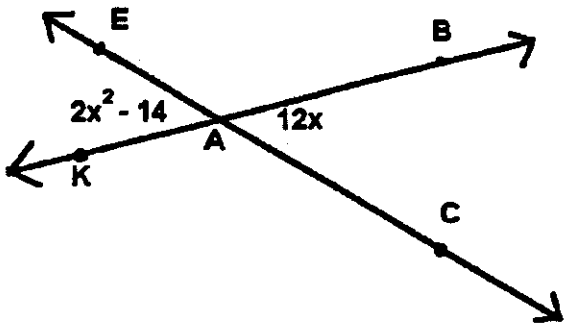
MIAMI KILLIAN - MIAMI SUNSET INVITATIONAL JANUARY 9, 1993

4

GEOMETRY TEAM

QUESTION #1

Find the measure of ∠ EAK



QUESTION #2

WHAT IS THE CENTER AND RADIUS OF THE CIRCLE WITH EQUATION:

$$x^2 + y^2 - 4x + 8y - 5 = 0$$

QUESTION #3

A PARALLELOGRAM WHOSE BASE IS REPRESENTED BY: X + 4 AND WHOSE ALTITUDE IS REPRESENTED BY: X - 1 HAS THE SAME AREA AS A SQUARE THAT HAS A SIDE OF LENGTH 6 cm. FIND THE VALUE OF X.

QUESTION #4

Find A + B + C + D, if A is the measure of an interior angle of a regular hexagon, B is the measure of an exterior angle of a regular pentagon, C is the measure of an angle formed by a tangent and a diameter, and D is the measure of an angle inscribed in a semicircle.

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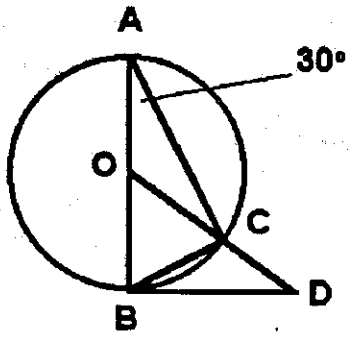
QUESTION #5

Angle COB is a central angle, m∠ BAC = 30°, and the segment DB is a tangent to the circle at B. Find the ratio of CD to BC.



QUESTION #6

Find the area of the triangle with vertices at A(5,8), B(1,2), and C(9,2).

QUESTION #7

Circles A, B, and C are externally tangent. The segments joining the centers of the circles have the lengths of AB = 5, AC = 3, and BC = 7. Find the sum of the lengths of three radii, one from each circle.

QUESTION #8

A square is circumscribed about a circle with a radius of 4. Another square is then inscribed within that circle. Find the ratio of the perimeter of the circumscribed square to the inscribed square.

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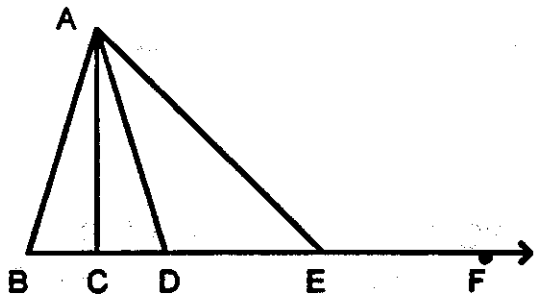
QUESTION #9

If A(1,2), B(2,4), and C(5,0) are the vertices of a triangle, then find the coordinates of the point of concurrency of the medians.

QUESTION #10

If a right triangle is also isosceles, then what is the ratio of the length of the hypotenuse to one of the legs?

QUESTION #11



If BC = $\frac{1}{2}$BD, and BD = $\frac{1}{2}$BE, AB = AE, and m∠ AEF = 138°, what is the measure of ∠ ADB?

QUESTION #12

How many sides does a polygon have if the sum of its interior angles is 3240?

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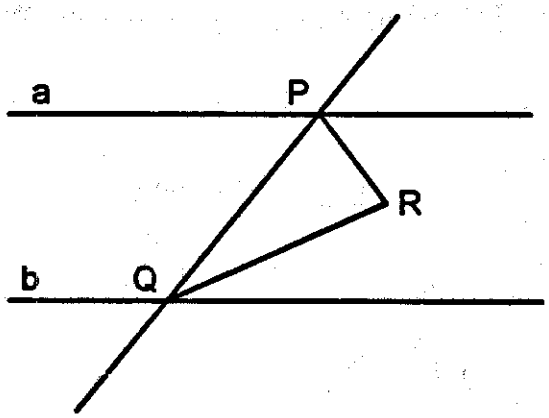
QUESTION #13

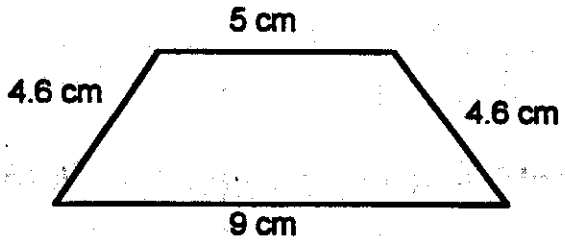
Find the length of the hypotenuse of a right triangle whose legs are 10 cm and 12 cm.

QUESTION #14



If a // b and segments PR and QR are angle bisectors, then find the measure of angle R.

QUESTION #15



Find the length of the median for the given trapezoid.