Geometry practice

1. Compute the radius of a circle which is inscribed in a triangle with sides of length 6, 8 and 10.

2. In rectangle ABCD, AB=15 and BC=20. F and E are on diagonal BD so that BF=5 and DE=5. Compute the area of triangle AFE.

3. Compute the maximum area of a triangle if the length of one side is 6 and the sum of the lengths of the other two sides is 10.

4. Compute the number of different values of N for which a regular N-sided polygon will have interior angles with an integral number of degrees.

5. The midpoint of a 12 inch chord of a circle is 1 inch from the circle. Compute the diameter of the circle.

6. A pyramid with a square base has eight edges with length one. Compute the volume of the pyramid.

7. In an isosceles trapezoid, the length of the longer base is equal to the length of the diagonal, while the length of the shorter base is equal to the length of a leg. Compute the measure of the smallest angle of the trapezoid.

8. A cube is inscribed in a sphere with radius 3. Compute the volume of the cube.

9. How many different sized right trangles with integral sides have one side of length 15?

10. The interior angles of a regular polygon with M sides each measure 2/3 the interior angles of a regular polygon with N sides. Find all possible (M,N).

11. An isosceles triangle has sides of length 8, 10, 10. Compute the length of the radius of the circumscribed circle.

12. In triangle ABC, AB=4, AC=8 and median AM=3. Compute the length of BC.

13. Compute x: a) $x=\sqrt{3\sqrt{24\sqrt{3\sqrt{24\sqrt{3\sqrt{24}}}}}}$ .....

b) $x=\sqrt[3]{288\sqrt[3]{288\sqrt[3]{288}}}$.....

c) $x^{x^{x^{\cdots}}}=3$