**Properties of Triangles**

**Ex1.** a) Verify that C(4,0) is the centroid of OPQ triangle.

 b) Verify that the centroid divides each median in a 2:1 ratio.

**Ex2.** The line segment joining the midpoints of two sides of a triangle is parallel to the third side and half its length**.** Verify **algebraically** this property in triangle A$(-10,1)$, R $(6,5)$ and T$(2,-11)$. Include a labelled diagram as part of your solution.

**Ex3.** A triangle has vertices M$(-7,-3)$, T$(6,10)$, and H $\left(3,-5\right).$

**i) Verify** that:

**a.** Triangle $∆MTH$ is a right triangle.

**b.** The median from the right angle to the hypotenuse is half as long as the hypotenuse.

**ii) Calculate** the perimeter.

**iii) Calculate** the area.