

1. A line segment has end points $(-2, 1)$ and $(8, 5)$.
 - (a) What is the midpoint M of segment AB ?
 - (b) Given point C with coordinates $(x, -1)$, what value of x forms a line segment CM that is perpendicular to AB ?
 - (c) What is the length of segment CM ?
 - (d) What is the equation of the line that coincides with segment CM ?
2. Triangle ABC has the following vertices: $A = (-2, 0)$, $B = (-4, 5)$ and $C = (3, 1)$.
 - (a) Classify the triangle.
 - (b) Find the centre of gravity (centroid) of $\triangle ABC$.

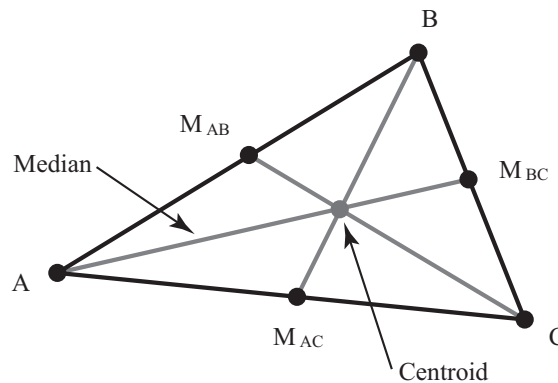


Figure 1: Relationship between the centroid (centre of gravity) and medians of a triangle.

3. The point $(x, 2)$ is on a circle with a radius of $2\sqrt{5}$. Find x .
4. What is the equation of a circle that contains the point $(2, 2\sqrt{3})$?
5. Three points A , B and C are given by $(9, 1)$, $(-3, -3)$ and $(-7, 9)$.
 - (a) Draw an accurate graph of the triangle ABC .
 - (b) Classify the triangle.
 - (c) Does ABC contain a right angle?
 - (d) How many degrees are there in each of the other two angles?
 - (e) Can a right triangle be scalene? Equilateral? Isosceles?