Straight Lines – Questions

Q1) The line AB has equation $2x + 3y = 7$. The line CD is parallel to AB and passes through the point $(9, -3)$. Find the equation of CD.

Q2) $P = (2, 1)$ and $Q = (-6, -5)$. Find the equation of the line which is perpendicular to PQ and passes through the midpoint of PQ.

Q3) Show that the lines with equations $5y - 2x = 4$ and $2y + 5x = 4$ are at right angles to each other.

Q4) Determine the equation of the straight line which passes through the given point and makes the stated angle with the x axis.

a) $(2, 3), 30°$

b) $(-1, 4), 45°$

Q5) A triangle ABC has vertices $A\ (1,0), B\ (3, 6), \& \ C\ (9, 0)$.

a) Find the equation of the median BN.

b) Find the equation of the altitude AM.

c) Find the point of intersection of BN & AM.

Q6) Determine the equation of the perpendicular bisector of the line joining the points $P\ (-2, 3)$ and $Q\ (3, 7)$.

Q7) Triangle LMN has vertices with co-ordinates $L\ (-7, -1), M\ (3, 9), \& \ N\ (9, -9)$.

a) Find the equation of LN.

b) Find the equation of the altitude MA.

c) Determine the co-ordinates of the point of intersection of LN and MA.

Straight Lines – Solutions

Q1) $y = -\frac{2}{3}x + 3$

Q2) $y = \frac{4}{3}x - \frac{4}{3}$

Q3) The lines have gradients of $\frac{2}{5}$ and $-\frac{5}{2}$

Since $\frac{2}{5}\ x - \frac{5}{2} = -1$, the lines are perpendicular

Q4) a) $y = \frac{1}{\sqrt{3}}(x - 2) + 3$ b) $y = x + 5$

Q5) a) $y = -3x + 15$ b) $y = x - 1$

c) The point of intersection is $(4, 3)$

Q6) $4y = -5x + 22.5$

Q7) a) $y = -\frac{1}{2}x - \frac{9}{2}$ b) $y = 2x + 3$

c) The point of intersection is $(-4.2, -5.4)$