

Exemplar P1 Q6

6. (a) Find the equation of l_1 , the perpendicular bisector of the line joining P (3,-3) and Q (-1,9).
- (b) Find the equation of l_2 which is parallel to PQ and passes through R (1,-2).
- (c) Find the point of intersection of l_1 and l_2 .
- (d) Hence find the shortest distance between PQ and l_2 .

Answers

(a) $y - 3 = \frac{1}{3}(x - 1)$

(b) $y + 2 = -3(x - 1)$

(c) $x = -\frac{1}{2}$, $y = \frac{5}{2}$

(d) $\sqrt{\frac{5}{2}}$ or $\frac{\sqrt{10}}{2}$ or $\sqrt{2.5}$