2. (a) Relative to a suitable set of coordinate axes, Diagram 1 shows the line $2x - y + 5 = 0$ intersecting the circle $x^2 + y^2 - 6x - 2y - 30 = 0$ at the points P and Q.

Find the coordinates of P and Q.

(b) Diagram 2 shows the circle from (a) and a second congruent circle, which also passes through P and Q.

Determine the equation of this second circle.

Answers

(a) $P(-3, -1)$  $Q(1, 7)$  
(b) $(x + 5)^2 + (y - 5)^2 = 40$