

**INSTRUCTIONS**

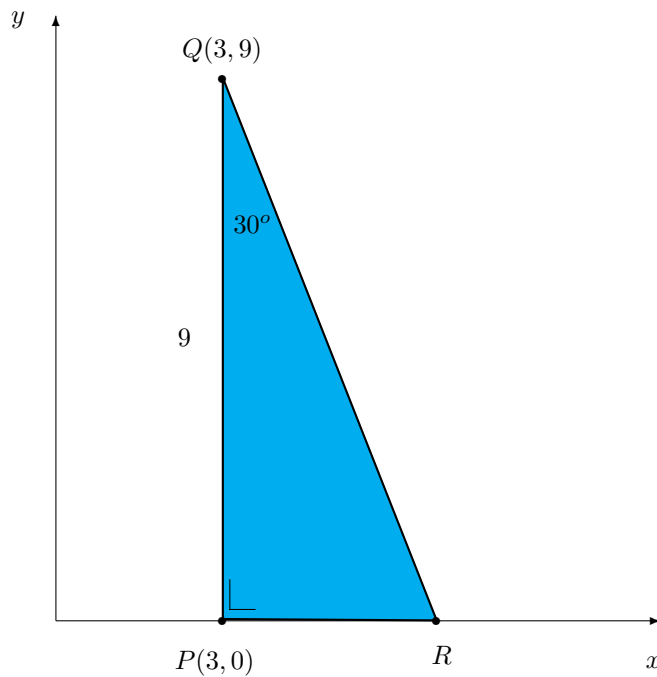
Full marks will be awarded for the correct solutions to ALL QUESTIONS. This paper will be marked out of a TOTAL MAXIMUM MARK OF 100. Credit will be given for clearly presented solutions.

**BSc (Hons) in Computer Games Development**

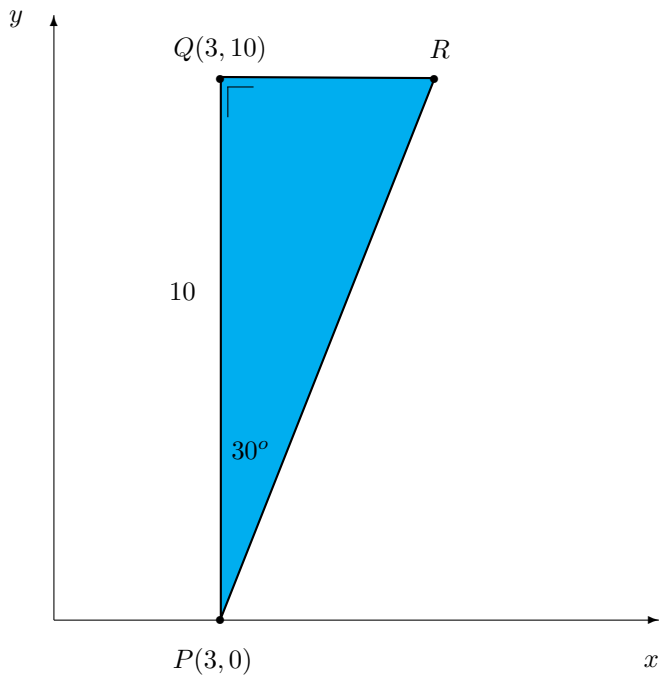
**YEAR 1**

**CLASS TEST 3 (SAMPLE PAPER 1)**

1. In each of the following coordinate diagrams in  $\mathbb{R}^2$  the triangle PQR is a right-angled triangle. In each case, using *basic trigonometry*, determine the coordinates of the point  $R$ .



**15 marks**



15 marks



2. (a) Find the shortest distance from the point  $P(1, 1, 1)$  to the plane  $\Pi$  that passes through the points  $A(0, 0, 1)$ ,  $B(0, 1, -1)$  and  $C(-1, 0, 1)$ .

25 marks

- (b) Find the equation of the straight line  $\varphi$  that passes through the point  $(0, 1, 0)$  and is parallel to the vector  $(-1, 1, 1)$ .

25 marks

- (c) Find the point of intersection  $S$  of the line  $\varphi$  with the plane  $\Pi$ .

20 marks

