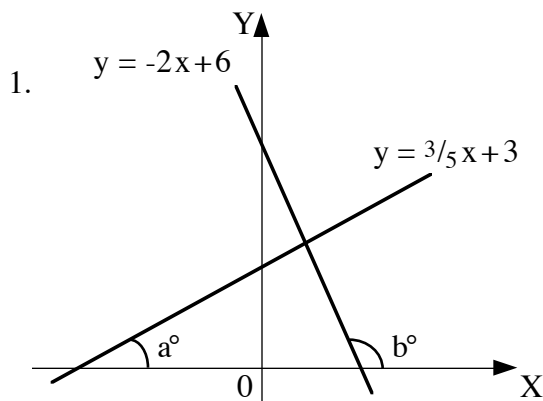


HOME EXERCISE 2

Set out carefully all appropriate working.



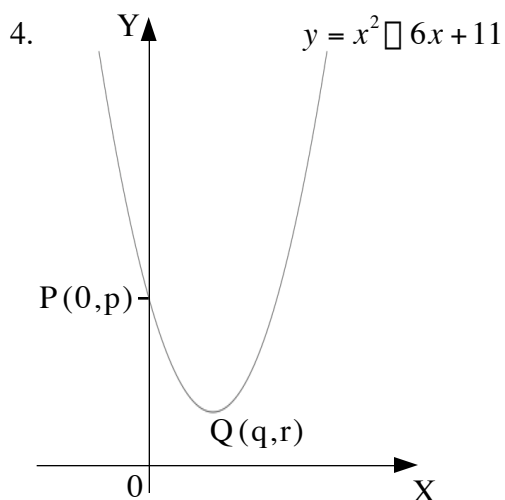
(a) Calculate the angles a° and b° that the lines shown make with the positive OX direction. (4)

(b) Hence calculate the angle between the two lines. (1)

2. Given that the lines with equations $3x - 4y + 12 = 0$ and $y = ax - 6$ are perpendicular, find the value of a . (2)

3. If $f(x) = 2x - x^2$ and $g(x) = x + 1$ (a) write in simplest form $f(g(x))$ (3)

(b) If $h(x) = \frac{1}{f(g(x))}$, state the values of x for which the function $h(x)$ is undefined. (2)



The graph of the function $f(x) = x^2 - 6x + 11$ is shown.

(a) Write $x^2 - 6x + 11$ the form $(x + a)^2 + b$. (2)

(b) The curve meets the y -axis at point $P(0, p)$ and the turning point is $Q(q, r)$. Write the values of p , q and r . (3)

(c) If $g(x) = 2 - f(x)$, sketch the graph of $g(x)$, marking clearly the turning point and the points where the graph meets the axes. (3)

Total 20 marks