1 The equation of a curve is $y = 4x^2 - 56x$
The curve has one turning point.

By completing the square, show that the coordinates of the turning point are $(7, -196)$
You must show all your working.

$y = 4x^2 - 56x$
$= 4[x^2 - 14x]$ (1)
$= 4[(x-7)^2 - 49]$ (1)
$= 4(x-7)^2 - 196$

hence the turning point is $(7, -196)$ (1)

$y = a(x-b)^2 + c$
has turning point (b, c)

(Total for Question 1 is 3 marks)

2 The curve **C** has equation $y = 2x^2 - 12x + 7$

Find the coordinates of the turning point on **C**.

By completing the square,

$y = 2(x^2 - 6x) + 7$ (1)

$= 2((x-3)^2 - 9) + 7$

$= 2(x-3)^2 - 18 + 7$

$= 2(x-3)^2 - 11$ ← y-coordinate (1)

↑ x-coordinate

(1)

(3 , −11)

(Total for Question 2 is 3 marks)