10

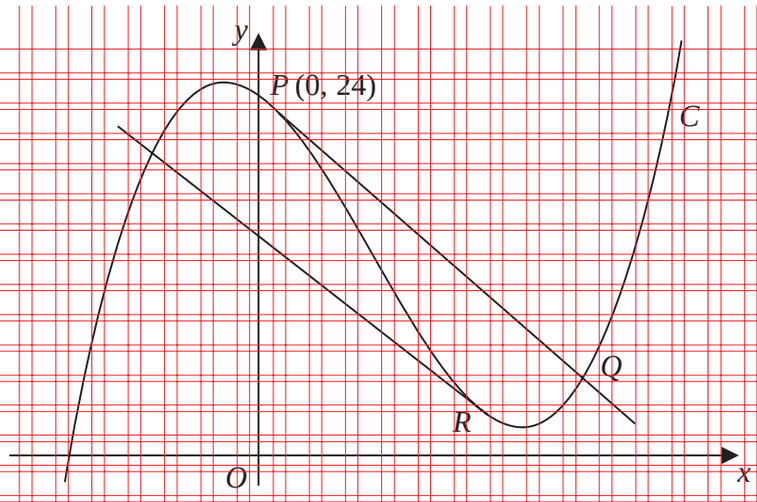

Diagram **NOT** accurately drawn

Figure 3

Figure 3 shows the curve C with equation $y = 9x^3 - 18x^2 - 8x + 24$
The curve cuts the y-axis at the point P with coordinates (0, 24).
The point Q lies on C and the line PQ is the tangent to C at P.

(a) Find an equation of PQ.

(4)

(b) Find the coordinates of Q.

(5)

The point R lies on C and S is the point such that $PQRS$ is a parallelogram.
Given that RS is the tangent to C at R,

(c) find the coordinates of R

(4)

(d) find the coordinates of S

(2)

(e) Show that S lies on C

(2)

Question 10 continued

Question 10 continued

Question 10 continued

Question 10 continued

(Total for Question 10 is 17 marks)

TOTAL FOR PAPER IS 100 MARKS