## FOLLOWING THE INSTRUCTIONS IN CALCULUS QUESTIONS.

Make sure you do what the question asks for and nothing more!!! ANSWERS

- Find the gradient of the function y = x<sup>2</sup> 8x + 3 when x = 5 Grad y ' = 2x - 8 Subs x = 5 Grad y ' = 10 - 8 = 2
  Find the gradient of the function y = x<sup>2</sup> - 8x + 3 at (1, -4)
- Grad y' = 2x 8Subs x = 1 (note the fact that y = -4 is irrelevant) Grad y' = 2 - 8 = -6

3. Find the x value when the gradient of  $y = x^2 - 8x + 3$  equals 6 Grad y' = 2x - 8 = 6So 2x = 14x = 7

4. Find the **coordinates** of the point where the gradient of  $y = x^2 - 8x + 3$  equals 2.

Grad y' = 2x - 8 = 2So 2x = 10

- x = 5 and so y = -12. The point is (5, -12)
- 5. Find the x value when the gradient of  $y = x^2 8x + 3$  equals 0 Grad y' = 2x - 8 = 0

$$\begin{array}{l} So \ 2x \ = 8 \\ x \ = 4 \end{array}$$

6. Find the coordinates of the point where the gradient of  $y = x^2 - 8x + 3$  equals 0.

Grad y' = 2x - 8 = 0So 2x = 8

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x = 4 and so y = -13. The point is (4, -13)
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7. Find the GRADIENT of the TANGENT to the curve y = x<sup>2</sup> - 8x + 3 at the point (1, -4) Grad y ' = 2x - 8 Subs x = 1 (note the fact that y = -4 is irrelevant)

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Grad y' = 2 - 8 = -6
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NOTE: the gradient at x = 1 IS the gradient of the tangent at x = 1
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8. Find the EQUATION of the TANGENT to the curve  $y = x^2 - 8x + 3$  at the point (1, -4) Grad y' = 2x - 8 Subs x = 1

Grad y' = 2 - 8 = -6

The TANGENT is a line with equ like y = mx + c where m = -6Subs x = 1, y = -4 -4 = -6 + c so c = 2

Equation of tangent is y = -6x + 2