**FOLLOWING THE INSTRUCTIONS IN CALCULUS QUESTIONS.**

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

1. Find the gradient of the function ***y = x2 – 8x + 3*** when ***x = 5***

 Grad ***y* ꞌ = *2x – 8***

 ***Subs x = 5***

 ***Grad y* ꞌ = 10 – 8 = 2**

2. Find the gradient of the function ***y = x2 – 8x + 3 at (1, -4)***

 Grad ***y* ꞌ = *2x – 8***

 ***Subs x = 1 (note the fact that y =* –*4 is irrelevant)***

 ***Grad y* ꞌ = 2 – 8 = – 6**

3. Find the ***x*** value when the gradient of ***y = x2 – 8x + 3*** equals 6

 Grad ***y* ꞌ = *2x – 8 = 6***

 ***So 2x = 14***

 ***x = 7***

4. Find the **coordinates** of the point where the gradient of ***y = x2 – 8x + 3***

 equals 2.

 Grad ***y* ꞌ = *2x – 8 = 2***

 ***So 2x = 10***

 ***x = 5 and so y = – 12. The point is (5,* – *12)***

5. Find the ***x*** value when the gradient of ***y = x2 – 8x + 3*** equals 0

 Grad ***y* ꞌ = *2x – 8 = 0***

 ***So 2x = 8***

 ***x = 4***

6. Find the coordinates of the point where the gradient of ***y = x2 – 8x + 3***

 equals 0.

 Grad ***y* ꞌ = *2x – 8 = 0***

 ***So 2x = 8***

 ***x = 4 and so y = – 13. The point is (4,* – *13)***

7. Find the GRADIENT of the TANGENT to the curve ***y = x2 – 8x + 3*** at the

 point (1, -4)

 Grad ***y* ꞌ = *2x – 8***

 ***Subs x = 1 (note the fact that y =* –*4 is irrelevant)***

 ***Grad y* ꞌ = 2 – 8 = – 6**

**NOTE: the gradient at *x* = 1 IS the gradient of the tangent at *x* = 1**

8. Find the EQUATION of the TANGENT to the curve ***y = x2 – 8x + 3*** at the

 point (1, -4)

 Grad ***y* ꞌ = *2x – 8 Subs x = 1***

 ***Grad y* ꞌ = 2 – 8 = – 6**

***The TANGENT is a line with equ like y = mx + c where m = – 6***

***Subs x = 1, y =* –4 – 4 = – 6 + c so c = 2**

**Equation of tangent is *y = – 6x + 2***