**LEVEL 2 ANTIDIFFERENTIATION *ANSWERS***

1. Find the equation of the curve which passes through the point (2, 9) and whose gradient is dy = 2x – 5

dx

2. Find the equation of the curve y = f(x) if the gradient is

y′ = 6x2 + 8x – 7 and when x = 1, y = 5

3. Find the equation of the curve y = f(x) if the gradient is f ′(x) = x4 and

f(1) = 0.

(ie when x = 1, y = 0)

4. Find the equation of the curve whose gradient function is dy = x – x2

dx

and when x = 1, y = 1

5(a) If the distance of a car from O is x = 6t2 + 2t + 1

find the velocity equation

ie ***v = dx = 12t + 2***

***dt***

and find the acceleration equation.

***ie a = dv = 12***

***dt***

(b) The acceleration of a car

is a = dv = 6t + 1

dt

(i) Find the Velocity

equation given that  
 v = 4 m/s when t = 0

(ii) Find the displacement

equation (ie distance equ)

given that when t = 0

the distance from O

is x = 2 m

6. f ′(x) = 6x – 12x2 and the curve passes through the point (2, 4). Find the equation of the curve

y = f(x)

7. Find the antiderivatives.

(a) ***dy = 4x3 – 7x***

***dx***

=

***3x + 5x2***

***2 4***

(b) ***dy =***

***dx***

=

8. (a) The acceleration of

an object moving in a line

is a = 6t – 4

At t = 0, the object is at O moving with a velocity of v = 1 ms-1

Find the velocity equation at time t sec

(b) Find at what times the

velocity becomes zero.

**seconds**