**SUMMARY OF CALCULUS 2.**

*1. Find the gradient of y = 5 + 7x + x4*

 *when x = 1*

*2. State whether the graph of*

*y = x3 – 12x2 + 36x is increasing, decreasing or stationary when*

*(a) x = 4*

*(b) x = 2*

*(c) x = 7*

*3. Find the x coordinates of the turning points (ie max/ min points) of the graph*

*y = x2(x – 4)2*

*4. Consider this piecewise graph:*

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*Draw the gradient function:*

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*5. If y' = – 2x + 5*

 *find the equation for y if the curve*

 *goes through (1, 7)*

*6. Find the equation of the tangent to*

 *y = x2 – 2x +1 at the point where*

 *x = 3*

*7. The distance, x of an object from O at t secs is given by :*

*x = t2 – 2t + 4*

*(a) how far from O is it at t = 0 sec?*

*(b) how far from O is it at t = 5 sec?*

*(c) find the velocity equation*

 *v = dx =*

 *dt*

*(d) find the velocity at t = 0 sec*

*(e) find the velocity at t = 5 sec*

*(f) find the acceleration equation*

 *a = dv =*

 *dt*

*8. A gun is fired so that the bullet goes vertically upwards.*

*The height of the bullet at t sec is*

*H = 80t – 5t2 + 2*

*(a) how high was the gun as the bullet was fired?*

*(b) find the velocity equation.*

*(c) find the time when the velocity of*

 *the bullet was zero.*

*(d) find the greatest high reached by*

 *the bullet.*

*(e) what was the initial velocity of the*

 *bullet?*

*(f) how far did the bullet travel in the 4th second? (from t = 3 to t = 4) .*

*9. The velocity of an object is given by*

 *v = 4t3 – 8t m/s*

*Find the distance equation given that at t = 2 sec the distance x = 10 m*

*10. This is the gradient graph of a function y = f(x)*

 *y'*

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*Draw the function:*

 *y*

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