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| Image result for this quiz is big | **Year 11 Methods**  **Term 3 Week 6 Quiz** |  |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Match the graphs of functions I, II, and III to the graphs of their derivatives A, B, and C. (3)

I. A.

II. B.

III. C.

1. The graph of the derivative of *f*(*x*) = 2*x* + 3 is (1)

a. a horizontal line b. a vertical line c. a line with a positive slope d. a line with a negative slope

1. The derivative of  has the equation (1)

a. *x* = 0 b. *y* = 0 c.  d.  e. *y* = 5

1. The graph of the derivative of  is (1)

a. a horizontal line b. a vertical line c. a line with a positive slope d. a line with a negative slope

1. If , the value of *x* at which the gradient of the curve is 1 is: (1)

a. 3 b. c. d. e. 0

1. Find the average rate of change of between x = 1 and x = 3. (2)
2. Find the equation of the tangent to the curve at x = 2 (3)
3. Find the instantaneous rate of change of the function when x = -2. (2)
4. The graph below shows the **derivative function**, of a function (1)



From this graph, we can conclude that:

A. The graph of has a stationary point at x = 3.5

B. The graph of has a maximum turning point at x = 5

C. The graph of has a minimum turning point at x = 2

D. The graph of has a maximum turning point at x = 2

E. The graph of has a stationary point of inflection at x = 3.5

1. Use **first principles** to find the derivative of the function: (2)
2. State the solutions of the equation (*x* - 2)(*x* + 3)(*x* - 4)(*x* + 5) = 0. (1)
3. Give the sequence of transformations which transforms the graph of *y* = *x*3 to the graph of *y* = 3(*x* - 1)3 + 2.

(3)

1. For the given points A(-2, 3) and B(-1, -4): (6)

a. find the midpoint (M) of A and B

b. find the distance between A and B

c. find the gradient of line AB.

1. Find the radius and the coordinates of the centre of the circle x2 + 4x + y2 - 6y - 12 = 0. (4)
2. The first and fifth terms of a GP are 5 and 3125 respectively. What is S5 for this sequence? (2)
3. If sin (a) =  and cos (b) = , find the exact value of cos (a + b) (5)
4. Solve the following: (6)