

FBQ1: Given that  $f(x)=2x+1$ , then  $f(3)$  is \_\_\_\_\_

Answer: \*7\*

FBQ2: \_\_\_\_\_ is the value of  $f(-5)$  in the function  $f(x)=x^2+2x-3$ .

Answer: \*12\*

FBQ3: The value of  $\frac{f(a+h)-f(a)}{h}$  in the function  $f(x)=x^2-2x+7$  is

Answer: \*2a+h-2\*

FBQ4: Let  $f(z-1) = z^2 - 2z + 13$ , then  $f(-1)$  is \_\_\_\_\_

Answer: \*13\*

FBQ5: Let  $h(x) = x^2 + x$ , then  $h(x+1) - h(x)$  is \_\_\_\_\_

Answer: \*2x+1\*

FBQ6: Let  $f(t-1) = t^2 + 2t$ , then  $f(2)$  is \_\_\_\_\_

Answer: \*15\*

FBQ7: is called the \_\_\_\_\_ of A

Answer: \*range\*

FBQ8: \_\_\_\_\_ of H

Answer: \*domain\*

FBQ9: is \_\_\_\_\_

Answer: \* $\frac{1}{2}$ \*

FBQ10: The rate at which is changing with respect to x when  $x = 1$  is

Answer: \* $\frac{1}{2}$ \*

FBQ11: The position at time t of an object moving along a line is given by  $s(t) = t^3 - 6t^2 + 9t + 5$ . The acceleration of the object at  $t = 1$  is \_\_\_\_\_

Answer: \*-6\*

FBQ12: The slope of the secant line through the point  $(1, f(1))$  and  $(4, f(4))$  on the graph of  $y=f(x)$  is \_\_\_\_\_

Answer: \*15\*

FBQ13: Suppose is \_\_\_\_\_

Answer: \*-7\*

FBQ14: An object moves along the y-axis (marked in metres) so that its position at the time (in seconds) is  $f(x)=x^3-6x^2+9x$ . The velocity at  $(x=2)$  is

\_\_\_\_\_ m/s

Answer: \*-3\*

FBQ15: A function  $f(x)$  is called an even function if \_\_\_\_\_

Answer:  $*f(-x)=f(x)*$

FBQ16: The evaluation of is \_\_\_\_\_

Answer:  $*4*$

FBQ17: The evaluation of is \_\_\_\_\_

Answer:  $*4/3*$

FBQ18: F The value of x at the maximum point of the curve is \_\_\_\_\_

Answer:  $*-1*$

FBQ19: \_\_\_\_\_

Answer:  $*-7*$

FBQ20: Suppose the total cost in Naira of manufacturing q units of a certain commodity is given by the function  $C(q) = q^3 - 30q^2 + 500q + 200$ . The cost of manufacturing 5 units of the commodity is \_\_\_\_\_

Answer:  $*N2,075*$

FBQ21: The position at time t of an object moving along a line is given by  $s(t) = t^3 - t^2 + 9t + 5$ . The acceleration of the object at  $t = 4$  is \_\_\_\_\_

Answer:  $*22*$

FBQ22: The position at time t of an object moving along a line is given by  $s(t) = 2t^3 - t^2 + 3t - 15$ . The velocity of the object at  $t = 2$  is \_\_\_\_\_

Answer:  $*23*$

FBQ23: Differentiate  $P(x) = (x - 1)(3x - 2)$  with respect to x.

Answer:  $*6x-5*$

FBQ24: Suppose assigns to each negative integer -2 and to each positive integer 2.

Then, the domain of is \_\_\_\_\_

Answer:  $*\{-2, -1, 1, 2, \dots\}$

FBQ25: The exact area of the piece of land which is bounded by the y-axis on the west, the x-axis in the south, the lake described by the function  $f(x) = 100 + (\frac{x}{100})^2$  in the north and the line  $x = 1000$  in the east is \_\_\_\_\_

Answer:  $*133, 333.33*$

FBQ26: The evaluation of is \_\_\_\_\_

Answer:  $*8*$

FBQ27: The evaluation of is \_\_\_\_\_

Answer:  $*-3*$

FBQ28: Suppose a certain car supplies a constant deceleration of A meters per second per second. If it is traveling at 90 kilometers per hour (25meters per second) when the brakes are applied, its stopping distance is 50 meters. The value of A is \_\_\_\_\_

Answer: \*6.25\*

FBQ29: Suppose a certain car supplies a constant deceleration of  $A$  meters per second per second. If it is traveling at 90 kilometers per hour (25 meters per second) when the brakes are applied, its stopping distance is 50 meters. \_\_\_\_\_ metres would the stopping distance have been if the car had been traveling at only 54 kilometers per hour when the brakes were applied

Answer: \*42\*

FBQ30: The evaluation of  $\int_0^1 (2+3t^2) dt$  is \_\_\_\_\_

Answer: \*0\*

FBQ31: After its brakes are applied, a certain car decelerates at the constant rate of 6 meters per second per second. If the car is traveling at 108 kilometres per hour when the brakes are applied, \_\_\_\_\_ metres is the distance travelled before coming to a complete stop? (Note: 108 kmph is the same as 30 mps.)

Answer: \*75\*

FBQ32: Suppose  $f(x)$  is defined by  $f(x) = 2x^2 + 3x - 5$ , then  $f'(x)$  is -----

Answer: \*62\*

FBQ33: The evaluation of  $\int_0^1 (2+3t^2) dt$  is \_\_\_\_\_

Answer: \*144\*

FBQ34: The evaluation of definite integral  $\int_0^6 x^2 (x-1) dx$  is \_\_\_\_\_

Answer: \*252\*

FBQ35: The maximum value of the function  $f(x) = x^3 - 3x^2 + 2x$  is \_\_\_\_\_

Answer: \*9\*

FBQ36: The evaluation of  $\int_0^1 x^2 dx$  is \_\_\_\_\_

Answer: \*-3/4\*

FBQ37: A is the region bounded by the curve  $y = 4x^3$ , the line  $x = 2$  and the  $x$ -axis. The area under the region is \_\_\_\_\_

Answer: \*16\*

FBQ38: The area of the region B is \_\_\_\_\_, where B is the region bounded by the curves  $y = x^2 - 2x$  and  $y = 1 - x^2$  between  $x = -2$  and  $x = 1$

Answer: \*12\*

FBQ39: Let  $f(x) = x^2 - 5x + 5$ , the value  $\lim_{\Delta x \rightarrow 0} \frac{f(x + \Delta x) - f(x)}{\Delta x}$  as  $\Delta x$  approaches zero is \_\_\_\_\_

Answer: \*2x-4\*

FBQ40: The value of  $f(x) = x^2 - 5x + 1$  when  $x = 4$  is \_\_\_\_\_

Answer: \*-3\*

FBQ41: If  $f(x) = x^2 - 2x + 7$ , then  $f(-5)$  is \_\_\_\_\_

Answer: \*42\*

FBQ42: Given  $f(x) = 2x - 4$  and  $g(x) = x^2 + 3$ , the composite functions  $f(g(x))$  is \_\_\_\_\_ when  $x = 2$

Answer: \*6\*

FBQ43: Let functions  $f(x) = 2x - 4$  and  $g(x) = x^2 + 3$ , the composite functions  $g(f(x))$  is \_\_\_\_\_ when  $x = 1$

Answer: \*5\*

FBQ44: The inverse function of  $f(x) = \sqrt{2x - 3}$  is \_\_\_\_\_ when  $x = 1$

Answer: \*2\*

FBQ45: The evaluation of  $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1}$  is \_\_\_\_\_

Answer: \*2\*

FBQ46: The differentiation of  $y = 2 \sin 3x$  is \_\_\_\_\_

Answer: \*10 cos 5t\*

FBQ47: The differential coefficient of  $y = 7 \sin 2x - 3 \cos x$  is \_\_\_\_\_

Answer: \*14 cos 2x + 12 sin 4x\*

FBQ48: The gradient of the curve  $f(x) = x^2$  at  $x = 2$  is \_\_\_\_\_

Answer: \*4\*

FBQ49: An alternating voltage is given by:  $v = 100 \sin 200t$  volts, where  $t$  is the time in seconds. The rate of change of voltage at  $t = 0.005$  s is \_\_\_\_\_ volts per second

Answer: \*10806\*

FBQ50: An alternating voltage is given by:  $v = 100 \sin 200t$  volts, where  $t$  is the time in seconds. The rate of change of voltage at  $t = 0.01$  s is \_\_\_\_\_ volts per second

Answer: \*-8323\*

Multiple Choice Questions (MCQs):

MCQ1: If  $f(x) = x^2 - 4x + 3$ , evaluate  $f(x+1)$

Answer:  $x^2 - 2x$

MCQ2: Let  $f(x-3) = x^2 - 2x + 7$ , find  $f(-1)$

Answer:  $x^2 + 7x - 7$

MCQ3: Let  $G(x) = x^2 + x - 5$ , find  $G(x+2) \hat{=}$   $G(-x)$

Answer:  $6x + 6$

MCQ4: Let  $H(x) = x^2 + 4x - 5$ , determine  $H(x+d) \hat{=}$   $H(x)$ .

Answer:  $x^2+2x+4$

MCQ5: Let  $f(x-1) = x^2 + 5x - 1$ , find  $f(4) + f(-2)$ .

Answer: 28

MCQ6: Let  $f(x) = 2x - 1$  and  $g(x) = x^2 - 4$ , find  $f(g(x))$ .

Answer:  $2x^2 - 9$

MCQ7: Let  $f(x) = 2x - 1$  and  $g(x) = x^2 - 4$ , find  $g(f(x))$ .

Answer:  $x^2 - 6x + 2$

MCQ8: Let  $h(x) = (x+2)\sin(x+1)$  and  $p(x) = 3x-5$ , find  $p(h(x))$ .

Answer:  $(x+6)\sin(3x+1)-5$

MCQ9: Let  $h(x) = (x+2)\sin(x+1)$  and  $p(x) = 3x-5$ , find  $h(p(x))$ .

Answer:  $(3x-3)\sin(3x-4)$

MCQ10: Find the inverse of  $f(x) = 3x + 5$ .

Answer:  $(5 - x)/3$

MCQ11: Which of the following terms best describe a mapping?

Answer: a transformation

MCQ12: Let  $f$  be a mapping. The set  $f(P)$  is called

Answer: range of  $f$

MCQ13:

Answer: domain of  $f$

MCQ14:

Answer: Function of  $f$

MCQ15: find the image set of  $f$ .

Answer:

MCQ16: find the range of  $f$ .

Answer:

MCQ17: Let  $f$  be a mapping defined by  $f(x) = x^2 + 1$  find the range of  $f$

Answer:

MCQ18:

Answer: 4

MCQ19:

Answer:  $\mathbb{R}^{1/2}$

MCQ20: Suppose the total cost in Naira of manufacturing  $q$  units of a certain commodity is given by the function  $C(q) = q^3 - 30q^2 + 500q + 200$ . The cost of

manufacturing 10 units of the commodity is .....

Answer: N3,200

MCQ21: Let  $y = x^3$  be a curve. The equation of the tangent line at the point where  $x = -1$  is  $y =$

Answer:  $3x + 2$

MCQ22:

Answer:

MCQ23: The position at time  $t$  of an object moving along a line is given by  $s(t) = t^3 - 6t^2 + 9t + 5$ . The velocity of the object at  $t = 1$  is

Answer: 0

MCQ24:

Answer:

MCQ25: Differentiate the function  $e^{-2x}$  with respect to  $x$ .

Answer:  $-2e^{-2x}$

MCQ26: Let  $y = \ln(6x - 4)$ .  $dy/dx$  is

Answer:

MCQ27: If  $f(x) = 2x^3 - 4x$ . Then  $f(x)$  is

Answer: odd

MCQ28:

Answer: 17

MCQ29: Let  $f$  assigns to each negative integer  $-3$  and to each positive integer  $3$ . What is the co-domain of  $f$ ?

Answer:

MCQ30: A function  $f(x)$  is called an even function if

Answer:  $f(-x) = f(x)$

MCQ31:

Answer:

MCQ32:

Answer:  $-1/2$

MCQ33:

Answer:

MCQ34:

Answer:

MCQ35:

Answer:

MCQ36:

Answer:

MCQ37: Find if  $x$  and  $y$  are given by the parametric equations,  $y = \cos 4t$ ,  $x = \sin 3t$  & nbsp;

Answer:

MCQ38:

Answer:

MCQ39: find if  $y = \sin 2x + 3\cos 5x$

Answer:  $-4\sin 2x - 75\cos 5x$

MCQ40: find the value of  $x$  at the minimum point of the curve

Answer: 1

MCQ41: Integrate  $1/(1-x^2)$  with respect to  $x$ .

Answer:  $\sin^{-1}x$

MCQ42: Find  $\int (4x^3x^2+1) dx$

Answer:  $8x^2+13/227$

MCQ43: Evaluate  $\int_0^1 3xe^{x^2} dx$ .

Answer:  $32(e-1)$

MCQ44: Integrate  $(3x^2+2x-1)/x^3$  with respect to  $x$

Answer:  $3\ln|x-2x+12x^2|$

MCQ45: Obtain  $\int (2x+11)^{10} dx$

Answer:  $2x+51122$

MCQ46: Determine:  $\int dx/x+1(x+2)$

Answer:  $86\ln|x^6+11|$

MCQ47: Determine:  $\int dx/x+1(x+2)$

Answer:  $\ln|x+1x+2|$

MCQ48:

Answer: 12€

MCQ49: Evaluate  $\int (x+1x) dx$

Answer:  $2x^{13}x+1$

MCQ50: Integrate  $\sin^3x\cos x$  with respect to  $x$

Answer:  $14\sin 4x$