XT - MATHS Grade 12

Subject: Calculus 1: Factor Theorem Total Marks: 76

Question 1: True/False [8]

 $f(x) = 2x^3 - 9x^2 + 16x - 12$

The only real root of f(x) is x = 2.

TRUE

Name:

FALSE

Question 2: True/False [8]

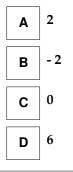
$$f(x) = x^3 - 8x^2 + 5x + 14$$

If f(x) = 0, then x will be equal to 2 or 7.

TRUE FALSE

Question 3: Multiple Choice [2]

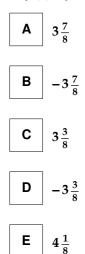
 $f(x) = x^2 - x$ divided by x + 1 leaves a remainder of ...



Question 4: Multiple Choice [4]

 $f(x) = x^3 + 2x^2 - 3x - 3$

The number p which must be added to f(x) so that f(x) + p is exactly divisible by (2x - 1) is ...



Class: _____ Date: _____

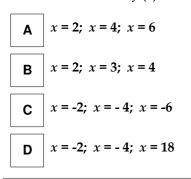
Mathematics - LO 2 : AS 4

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Question 5: Multiple Choice [6]

If x - 2 is a factor of $f(x) = x^3 - 12x^2 + 44x - 48$, what is the solution of f(x) = 0?



Question 6: True/False [2]

If f(x) is a polynomial of the 3rd degree and

 $f(x) = (2x + 3) \cdot Q(x) + 7$, then f(x) - 7 will be divisible by (2x + 3).

Question 7: True/False [3]

(x + 2) is a factor of $x^3 + 8x^2 + 17x + 10$.

TRUE FALSE

Question 8: Socrates [8]

If $f(x) = x^3 + ax^2 - 7x + b$ and $g(x) = x^2 + x - 2$, then a = ... and b = ...Type in the two answers in order, separated by a ;

Question 9: Socrates [4]

 $f(x) = x^{3} + (k-4)x^{2} + (k-9)x - 4$

If f(x) divided by (x - 2) gives a remainder of 12, then the value of k will be ... Type the number only.

Question 10: Socrates [4]

 $f(x) = 12x^3 + mx^2 + 10x - 8$ If 2x + 1 is a factor of f(x), then m = ...Type the number only.

Question 11: Socrates [3]

When $f(x) = 2x^3 - 7x^2 - 3x + 20$ is divided by 2x + 3, the remainder is ... Type the number only. Mathematics - LO 2 : AS 4

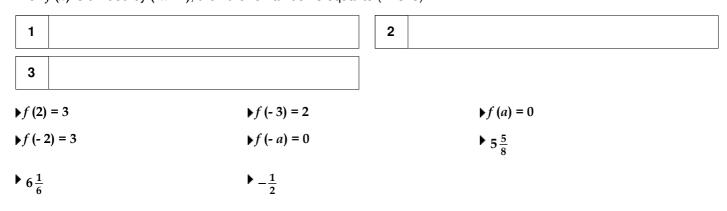
Question 12: Cloze [4]

Mathematics - LO 2 : AS 4

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$f(x) = x^3 - 2x^2 - 2x + 7$

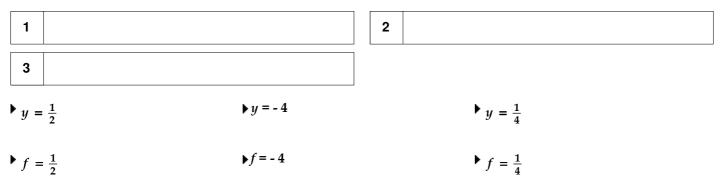
If f(x) is divided by (x - a) and it leaves no remainder, then (Ans. 1). If f(x) is divided by (x - 2) and the remainder is 3, then (Ans. 2). When f(x) is divided by (2x - 1), then the remainder is equal to (Ans. 3).



Question 13: Cloze [6]

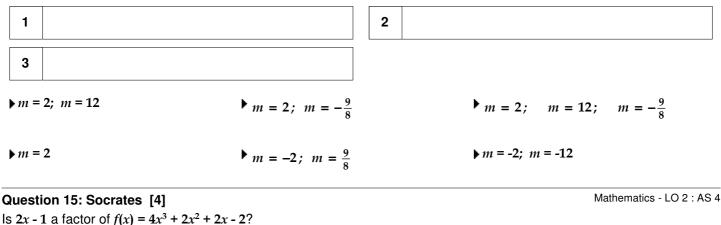
 $f(y) = 8y^3 + 26y^2 - 23y + 4$ and $f(\frac{1}{2}) = 0$.

The three roots in ascending order are: (Ans. 1), (Ans. 2) and (Ans. 3).



Question 14: Cloze [10]

 $f(x) = x^3 + m^2x^2 - 25x - 14m$ The value(s) of *m* for which x + 1 will be a factor of f(x) is/are (Ans. 1). The value(s) of *m* for which x - 4 will be a factor of f(x) is/are (Ans. 2). The value(s) of *m* for which the product of x + 1 and x - 4 will be a factor of f(x) is/are (Ans. 3).



Type either Yes or No.