UNIRAZAK
UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION

NOVEMBER 2021

COURSE TITLE	**BASIC MATHEMATICS**
COURSE CODE	**FMAT0114**
DATE/DAY	**17 FEBRUARY 2022 / THURSDAY**
TIME/DURATION	**09:00 AM - 10:30 AM / 1.5 Hours**

INSTRUCTIONS TO CANDIDATES :

1. Please read the instruction under each section carefully.
2. Candidates are reminded not to bring into examination hall/room any form of written materials or electronic gadget except for stationery that is permitted by the Invigilator.
3. Students who are caught breaching the Examination Rules and Regulation will be charged with an academic dishonesty and if found guilty of the offence, the maximum penalty is expulsion from the University.

(This Question Paper consists of **3** Printed Pages including front page)

*****DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO*****

There are SIX (6) questions in this paper. Answer ALL questions in the answer booklet. **(100 Marks)**

1. Solve the system of equation below using matrices operation.

$$5x - 2y + 3z = -1$$
$$3x + y - 2z = 25$$
$$2x - 4y + 5z = -29$$

(20 marks)

2. Find the equation of a straight line that passes through point A given the condition as follows;

   a) $A(2, -4)$; parallel to the line $5x - 2y = 4$ (10 marks)

   b) $A(7, -3)$; perpendicular to the line $2x - 5y = 8$ (10 marks)

(20 marks)

3. Find the partial decomposition for

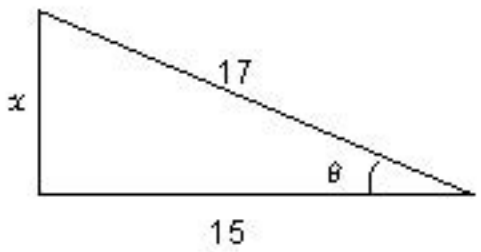
$$\frac{x + 34}{x^2 - 4x - 12}$$

(10 marks)

4. Find the quotient and remainder for $x^3 - 8x - 5$ divided with $x + 3$. **(10 marks)**

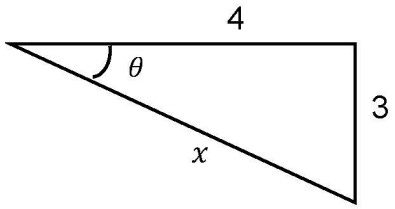
5. Find the values of x. Hence, compute the six trigonometric functions for the angle θ.

   a)



(15 marks)

b)



(15 marks)

(30 marks)

6. Evaluate the following limits.

a) $\lim_{(x,y)\to(-2,3)} (4x^2 + 5y^2 - 2y - 5x + 1)$ (5 marks)

b) $\lim_{(x,y,z)\to(-2,3,1)} (2x^2 - 2y^2 + 3z^2 - 2y - 5x + 4z)$ (5 marks)

(10 marks)

*** END OF QUESTION PAPER ***