

KING FAHD UNIVERSITY OF PETROLUUM AND MINERALS

Math 001 Term 041

Supplementary questions

Part One:

Q1: Which one of the following relations **DOSE NOT** defined as a function of x :

- a. $x + y^3 = 1$
- b. $|x| - y = 5$
- c. $\sqrt{x^2 + y^2} = 3$
- d. $\{(5,10), (3,10), (-3,8), (-5,6)\}$

Q2: Find the center and diameter of the circle: $x^2 + y^2 + 4x - 2y - 11 = 0$

- e. Center = $(2, -1)$, $r = 4$
- a. Center = $(-2, 1)$, $r = 16$
- b. Center = $(2, -1)$, $r = 16$
- c. Center = $(-2, 1)$, $r = 4$

Q3: The solution set of the equation $\left\lceil \frac{1}{3}x \right\rceil = -1$, where $\lceil y \rceil$ is the greatest integer less than or equal to y , is equal to:

- a. $[-3, -1)$
- b. $[-6, 3)$
- c. $[-6, -3)$
- d. $[-3, 0)$

Q4: The line $3y + 2x + 6 = 0$

- a. is perpendicular to the line $2y + 3x = 0$
- b. is parallel to the line $2y + 3x + 6 = 0$
- c. has y -intercept $(0, -2)$ and x -intercept $(3, 0)$
- d. has y -intercept $(0, -2)$ and slope $\frac{-2}{3}$

Q5: The domain of $f(x) = \sqrt{\frac{x^2 - 4}{1 - x}}$ is

- a. $(-\infty, -2] \cup (1, 2)$
- b. $(-\infty, -2) \cup (1, 2]$
- c. $(-\infty, -2] \cup (1, 2]$
- d. $(-\infty, -2) \cup (1, 2)$

Q6: If M is the midpoint of the line segment with endpoints $(-1,12)$ and $(-3,-10)$, then the distance between the point $(2,-1)$ and M is equal to:

- a. $2\sqrt{5}$
- b. 2
- c. $3\sqrt{5}$
- d. 6

Q7: If the line passes through $(3k,-1)$ and $(2,k)$ is perpendicular to the line $2x-5y+1=0$, then find the value of k .

- a. $\frac{-13}{12}$
- b. $\frac{13}{12}$
- c. $\frac{-12}{13}$
- d. $\frac{12}{13}$

Q8: If $y = f(x)$ is a linear function such that $f(1) = 7$ and $f(-1) = 3$, then $f(0) =$

- a. 6
- b. 5
- c. 4
- d. 3

Q9: if the three points $(1,2)$, $(2,10)$ and $(x,6)$ lie on the same straight line, then $x =$

- a. $-11/8$
- b. $11/8$
- c. $-3/4$
- d. $3/4$

Q10: The straight line with x-intercept $\frac{-1}{2}$ and y-intercept 3 is perpendicular to:

- a. $2x+3y = -6$
- b. $y = \frac{x}{6} - 5$
- c. $x+6y = 2$
- d. $2x-3y = -6$
- e. $6x+y = 2$

Q11: If $y = f(x)$ is a linear function such that $f(2) = -1$ & $f(-1) = 2$, then $f(0) =$.

- a. -2
- b. -1
- c. 1
- d. 2
- e. 3

Part Two:

Q1: Find the equation of the line passing through $(-2,3)$ & $(-2,11)$.

Q2: Sketch the graph of $\frac{2}{5}x + y - 3 = 0$ using slope and intercept method.

Q3: Let L be the line with x-intercept $(0,3b^2)$ and y-intercept $(2b^3,0)$, If L perpendicular to the line $2x + 3y - 5 = 0$

a. Find the value of b .

b. Use **a** to find the equation of the line L .

Q4: Find the equation of the line passes through the center of the circle $3x^2 + 3y^2 + 9x - 12y + 6 = 0$ and the point $(0,-1)$.

Q5: Find the equation of a circle that has a diameter with endpoints $(-3,4)$ and $(-1,0)$.

Q6: Find the domain of $f(x) = \sqrt{4-x^2}$.

Q7: Find the domain of $f(x) = \sqrt{x+35-6x^2}$.

Q8: Draw the graph of the equation $y - |x+4| - 1 = 0$, then find x-intercept and y-intercept.

Q9: Write the equation of a circle that has the center in the Fourth Quadrant and tangent to both axis and has radius equal to 5.

Q10: If the equation $kx + 3y - 1 = 0$ is parallel to the line joining the points $(1, 2-k)$ and $(0,3)$, then the value of k equal to?

Q11: If $y = f(x)$ is a linear function such that $f(2) = -1$ & $f(-1) = 2$, then find $f(0)$.

Q12: If $(2,4)$ is the midpoint of the line joining the points $(x,4)$ and $(5,y)$, then find $x + y = ?$

Q13: Given that $f(x) = \begin{cases} |2x-2| & x < -2 \\ |1-2x| & -2 \leq x < 4, \\ 3-x & x \geq 4 \end{cases}$,

Find $f(-4) + f(\pi) - f(-0.5) + f(4)$