Model C

King Abdulaziz University
College of Science and Arts – Rabigh
Department of Mathematics

Second Semester 2016

MATH 110

First Exam

Time Allowed: 90 Minutes

Name:_____

ID No:_____

Section:_____

<u>Choose the correct answer in the following questions:</u>

(1) The solution of the inequality $3x + 1 \geq 5x + \dfrac{3}{2}$ is

    a) $\left[\dfrac{-1}{4}, \infty\right)$ b) $\left(-\infty, \dfrac{-1}{4}\right]$

    c) $\left(\dfrac{1}{4}, \dfrac{1}{3}\right)$ d) $\left[\dfrac{-1}{4}, \dfrac{1}{3}\right)$

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(2) For each real number x we have

    a) $\left|x^2 + 3\right| = x^2 + 3$ b) $\left|x^2 + 3\right| = -x^2 + 3$

    c) $\left|x^2 + 3\right| = x^2 - 3$ d) $\left|x^2 + 3\right| = -x^2 - 3$

(3) The solutions of the equation $|2x - 1| = 5$ are

    a) $x = -2 \; ; \; 3$ b) $x = -3 \; ; \; 2$

    c) $x = 2 \; ; \; 3$ d) $x = -3 \; ; \; -2$

(4) The solution set of the inequality $\left|\dfrac{x-1}{2}\right| > 1$ is

    a) $[-1, 3)$ b) $(-\infty, 3]$

    c) $(-1, \infty)$ d) $(-\infty, -1) \cup (3, \infty)$

(5) The slope m for the line $-10x + 5y = 15$ is

    (a) 2 (b) -10 (c) $\dfrac{1}{2}$ (d) $-\dfrac{1}{2}$

(6) The solution of the inequality $3 < 4x - 1 \leq 7$ is

    a) $[1, \infty)$ b) $(-\infty, 2]$

    c) $(1, 2]$ d) $\left(\dfrac{1}{2}, \dfrac{3}{2}\right]$

(7) If the graph of the function $y = \sqrt[3]{x}$ is shifted 3 units to the left and

   2 units upward. An equation for the new function is

    (a) $y = \sqrt[3]{x - 3} - 2$ (b) $y = \sqrt[3]{x + 3} + 2$

    (c) $y = \sqrt[3]{x - 2} - 3$ (d) $y = \sqrt[3]{x + 3} - 2$

(8) The slope m and the y-intercept b of the line $4x - 2y = 1$ are

    a) $m = -2$, $b = -\dfrac{1}{2}$ b) $m = -2$, $b = \dfrac{1}{2}$

    c) $m = 2$, $b = \dfrac{1}{2}$ d) $m = 2$, $b = -\dfrac{1}{2}$

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(9) An equation for the line passing through $(1,0)$ and parallel to the line $6x - 2y = 4$ is

        a) $y = 3x - 3$ b) $y = \dfrac{1}{3}x - \dfrac{1}{3}$

          c) $y = -3x - 3$ d) $y = -3x + 3$

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(10) The distance between the points $(4, -1)$ and $(3,1)$ is

    a) $\sqrt{49}$ b) $\sqrt{5}$

    c) 5   d)   1

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(11) An equation of the line with slop $\dfrac{-2}{3}$ and passing through $(-2,2)$ is

    a) $2x + 3y = 1$ b) $2x + 3y = 2$

    c) $-3x + 2y = 1$ d) $3x - 2y = -10$

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(12) The radian measure of $100°$ is

    a) $\dfrac{5\pi}{6}$ b) $\dfrac{2\pi}{3}$ c) $\dfrac{5\pi}{9}$ d) $\dfrac{\pi}{3}$

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(13) If $\sin(\theta) = \dfrac{4}{5}$ and $0 < \theta < \dfrac{\pi}{2}$ then $\cos(\theta) =$

    a) $-\dfrac{5}{3}$ b) $\dfrac{3}{5}$

    c) $\dfrac{5}{3}$ d) $-\dfrac{3}{5}$

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(14) The value of $|\pi - 2| =$

    (a) $\pi - 2$ (b) π (c) $2 - \pi$ (d) $\pi + 2$

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(15) The function $f(x) = \dfrac{x}{x^2 + 1}$ is

(A) Even   (B) Odd   (C) Neither even nor odd   (D) Even and odd

(16) The domain of $f(x) = \sqrt{4 - x}$ is

(A) $(4, \infty)$ (B) $[4, \infty)$ (C) $(-\infty, 4]$ (D) $(-\infty, 4)$

(17) The function $f(x) = \dfrac{x^2 - 1}{x^2 + 1}$ is

(A) Polynomial   (B) Power   (C) Quadratic   (D) Rational

(18) Let $f(x) = \sqrt{x + 1}$ and $g(x) = \sqrt{x - 1}$. Then $(f+g)(x)$ is

(A) $\sqrt{x + 1}$ (B) $\sqrt{x + 1} + \sqrt{x - 1}$ (C) $\sqrt{x + 1} - \sqrt{x - 1}$ (D) $\sqrt{x - 1}$

(19) Let $f(x) = \sqrt{x + 1}$ and $g(x) = \sqrt{x - 1}$. Then the domain of $(f+g)$ is

(A) $[1, \infty)$ (B) $(1, \infty)$ (C) $[-1, \infty)$ (D) $[-1, 1]$

(20) Let $f(x) = \sqrt{x - 1}$ and $g(x) = x + 4$. Then $(fog)(x)$ is

(A) $\sqrt{x}$ (B) $\sqrt{x} + 3$ (C) $\sqrt{x + 3}$ (D) $\sqrt{x - 1}$

(21) the function $f(x) = 3x^2 - x^4 + 1$ is

(A) Even   (B) Odd   (C) Neither even nor odd   (D) Even and odd

(22) The graph of $y = |x|$ is stretched vertically by a factor 2 and compressed horizontally by a factor 5, the equation for the new graph is

(A) $y = 10|x|$ (B) $y = 2|x - 5|$ (C) $y = 5|x - 2|$ (D) $y = 5|x|$

(23) The function $f(x) = \dfrac{x^4 - x^3 + 2}{x^2 + \sqrt{x} + 1}$ is

(A) Algebraic function   (B) Polynomial function
(C) Root function   (D) Rational function

(24) The domain of the function $f(x) = \dfrac{5x + 4}{x^2 + 3x + 2}$ is

(A) $(-2, -1)$ (B) $R/\{-1, -2\}$
(C) $[-2, -1]$ (D) R

(25) If $f(x) = x + 2$ and $g(x) = \sqrt{x - 9}$. Then $\left(\dfrac{f}{g}\right)(x) =$

(A) $\dfrac{1}{x + 2}$ (B) $\dfrac{x + 2}{\sqrt{x - 9}}$ (C) $\dfrac{1}{x - 2}$ (D) $\dfrac{\sqrt{x - 9}}{x + 2}$

(26) If $f(x) = x + 2$ and $g(x) = \sqrt{x-9}$. Then the domain of $\left(\dfrac{f}{g}\right)$ is

(A) R (B) $(9, \infty)$ (C) $[9, \infty)$ (D) $(-\infty, 9) \cup (9, \infty)$
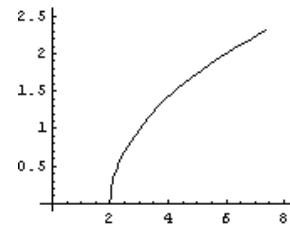
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(27) $\tan(x) =$

(a) $\dfrac{\sin(x)}{\cos(x)}$ (b) $\dfrac{\cos(x)}{\sin(x)}$ (c) $\dfrac{1}{\sin(x)}$ (d) $\dfrac{1}{\cos(x)}$

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(28) $\cos(\dfrac{\pi}{3}) =$

a) $\dfrac{1}{2}$ b) $-\dfrac{1}{2}$ c) $\dfrac{\sqrt{3}}{2}$ d) $-\dfrac{\sqrt{3}}{2}$

(29) The eqution of the figure shown is

a) $y = \sqrt{x} - 2$ b) $y = 2\sqrt{x}$

c) $y = \sqrt{x+2}$ d) $y = \sqrt{x-2}$

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(30) If the graph of $y = \sqrt{x+1}$ is reflected about the y-axis, the equation for the new graph is

(A) $y = \sqrt{-x-1}$ (B) $y = \sqrt{-x+1}$

(C) $y = -\sqrt{x+1}$ (D) $y = \sqrt{x-1}$

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