

A

King Abdul Aziz University Faculty of Sciences		Mathematics Department	
Math 110		First Test Spring 2012 (30 Marks)	
Student Name:		Student Number: A	
1) $(-3, 2] \setminus (0, 5) =$			
☒ A $(-3, 0]$	☐ B $(-3, 0)$	☐ C $(2, 5)$	☐ D $[2, 5)$
2) $300^\circ =$			
☐ A $\frac{4\pi}{3}$ rad.	☒ B $\frac{5\pi}{3}$ rad.	☐ C $\frac{5\pi}{6}$ rad.	☐ D $\frac{2\pi}{3}$ rad.
3) $\frac{5\pi}{3}$ rad =			
☐ A 120°	☐ B 150°	☐ C 240°	☒ D 300°
4) $\frac{1}{\cos x} =$			
☐ A $\cot x$	☐ B $\tan x$	☒ C $\sec x$	☐ D $\csc x$
5) If $f(x) = x^3 + x^2 + 9$, and $g(x) = 2x^2 + 1$, then $(f - g)(x) =$			
☒ A $x^3 - x^2 + 8$	☐ B $x^3 - x^2 + 10$		
☐ C $x^3 + 3x^2 + 8$	☐ D $x^3 + 3x^2 + 10$		
6) $\tan\left(\frac{\pi}{3}\right) =$			
☒ A $\sqrt{3}$	☐ B $\frac{\sqrt{3}}{2}$	☐ C $\frac{1}{\sqrt{3}}$	☐ D $\frac{2}{\sqrt{3}}$
7) If the graph of the function $f(x) = 7^x$ is shifted a distance 5 units to the left, then the new graph represented the graph of the function is			
☒ A $7^{(x+5)}$	☐ B $7^{(x-5)}$	☐ C $7^x + 5$	☐ D $7^x - 5$
8) Find the range of the function $f(x) = \sqrt{x - 5}$.			
☐ A $(-\infty, 0]$	☐ B $\mathbf{R} = (-\infty, \infty)$	☐ C $[5, \infty)$	☒ D $[0, \infty)$
9) If $\cos(x) = \frac{3}{4}$, and $0 < x < \frac{\pi}{2}$, then $\sin(x) =$			
☐ A $\frac{\sqrt{7}}{3}$	☐ B $\frac{3}{\sqrt{7}}$	☒ C $\frac{\sqrt{7}}{4}$	☐ D $\frac{4}{\sqrt{7}}$
10) The solution of the inequality $5x + 3 \leq 3x + 5$ is			
☐ A $(-\infty, 1)$	☐ B $(-\infty, 4]$	☐ C $(-\infty, 4)$	☒ D $(-\infty, 1]$
11) Find the domain of the function $f(x) = \sqrt[3]{x - 2}$.			
☐ A $(-\infty, 2]$	☐ B $[2, \infty)$	☐ C $[-2, \infty)$	☒ D $\mathbf{R} = (-\infty, \infty)$

12) The distance between the points $(2, -1)$ and $(-2, 1)$ is ☐ A $3\sqrt{5}$ ☒ B $2\sqrt{5}$ ☐ C $\sqrt{6}$ ☐ D 2
13) Find the domain of the function $f(x) = \sqrt{x^2 - 2}$. ☒ A $(-\infty, -\sqrt{2}] \cup [\sqrt{2}, \infty)$ ☐ B $(-\infty, -\sqrt{2}) \cup (\sqrt{2}, \infty)$ ☐ C $[-\sqrt{2}, \sqrt{2}]$ ☐ D $(-\sqrt{2}, \sqrt{2})$
14) The function $f(x) = \sin x$ is ☐ A Power ☐ B Exponential ☐ C Logarithmic ☒ D Trigonometric
15) If $f(x) = \sqrt{x+2}$, and $g(x) = \sqrt{x-5}$, then D_{f+g} is ☐ A $[2, \infty)$ ☐ B $[-5, \infty)$ ☐ C $[2, \infty)$ ☒ D $[5, \infty)$
16) If $f(x) = x+2$, and $g(x) = x-5$, then $(fg)(x) =$ ☐ A $x^2 - 7x + 10$ ☐ B $x^2 + 7x + 10$ ☒ C $x^2 - 3x - 10$ ☐ D $x^2 + 3x - 10$
17) The solution of the inequality $x^2 - x - 2 \geq 0$ is ☐ A $(-\infty, -1) \cup (2, \infty)$ ☒ B $(-\infty, -1] \cup [2, \infty)$ ☐ C $(-\infty, -2) \cup (1, \infty)$ ☐ D $(-\infty, -2] \cup [1, \infty)$
18) $\csc^2 x =$ ☐ A $1 - \cot^2 x$ ☐ B $\cot^2 x - 1$ ☐ C $-\cot^2 x - 1$ ☒ D $1 + \cot^2 x$
19) If $f(x) = \sqrt{x}$, and $g(x) = \sin x^2$, then $(g \circ f)(x) =$ ☐ A $\sqrt{\sin x}$ ☒ B $\sin x$ ☐ C $\sqrt{\sin x^2}$ ☐ D $\sin \sqrt{x}$
20) If $f(x) = x^2 - 7x + 10$, $g(x) = x - 2$, and $x \neq 2$, then $\left(\frac{f}{g}\right)(x) =$ ☐ A $5 - x$ ☐ B $x + 5$ ☐ C $-x - 5$ ☒ D $x - 5$
21) The solution of the inequality $ x - 7 < 2$ is ☐ A $[5, 9]$ ☒ B $(5, 9)$ ☐ C $(-\infty, 5) \cup (9, \infty)$ ☐ D $(-\infty, 5] \cup [9, \infty)$
22) The solution of the inequality $ x - 7 > 2$ is ☐ A $[5, 9]$ ☐ B $(5, 9)$ ☒ C $(-\infty, 5) \cup (9, \infty)$ ☐ D $(-\infty, 5] \cup [9, \infty)$
23) The equation of the line passes through the points $(-1, 3)$ and $(1, 7)$ is ☐ A $y = 2x - 5$ ☐ B $y = 2x + 1$ ☒ C $y = 2x + 5$ ☐ D $y = 2x - 1$
24) The function $f(x) = 4x^6 + 3x^2 + 1$ is ☒ A Even ☐ B Odd ☐ C Even and odd ☐ D Neither even nor odd
25) Find the equation of the line through the point $(-1, 3)$ with slope -2 . ☐ A $y = -2x - 5$ ☒ B $y = -2x + 1$ ☐ C $y = -2x + 5$ ☐ D $y = -2x - 1$

26) If $ x - 3 = 5$, then $x =$			
☐ A -8 or 2	☐ B -8 or -2	☐ C 2 or 8	☒ D -2 or 8
27) The solution of the inequality $-2 \leq 3x - 5 \leq 7$ is			
☐ A (1, 4)	☒ B [1, 4]	☐ C [1, 4)	☐ D (1, 4]
28) Find the equation of the line with slope -5 and y -intercept 2 is .			
☒ A $y = -5x + 2$	☐ B $y = -5x - 2$		
☐ C $y = 5x + 2$	☐ D $y = 5x - 2$		
29) The slope the line perpendicular to the line $5y + 7x - 1 = 0$ is			
☐ A $-\frac{5}{7}$	☐ B $\frac{7}{5}$	☐ C $-\frac{7}{5}$	☒ D $\frac{5}{7}$
30) Find the domain of the function $f(x) = \frac{x + 9}{x^2 - 3x - 10}$.			
☒ A $\mathbf{R} \setminus \{-2, 5\}$	☐ B $\mathbf{R} \setminus \{-5, -2\}$	☐ C $\mathbf{R} \setminus \{-5, 2\}$	☐ D $\mathbf{R} \setminus \{2, 5\}$