

(B)

King Abdul Aziz University Faculty of Sciences		Mathematics Department	
Math 110		First Test Spring 2012 (30 Marks)	
Student Name:		Student Number: B	

1) If $\cos(x) = \frac{3}{4}$, and $0 < x < \frac{\pi}{2}$, then $\tan(x) =$ ☒ A $\frac{\sqrt{7}}{3}$ ☐ B $\frac{3}{\sqrt{7}}$ ☐ C $\frac{\sqrt{7}}{4}$ ☐ D $\frac{4}{\sqrt{7}}$
2) If $ x - 3 = 5$, then $x =$ ☐ A -8 or 2 ☐ B -8 or -2 ☒ C -2 or 8 ☐ D 2 or 8
3) If the graph of the function $f(x) = 7^x$ is shifted a distance 5 units to the right, then the new graph represented the graph of the function is ☐ A $7^{(x+5)}$ ☒ B $7^{(x-5)}$ ☐ C $7^x + 5$ ☐ D $7^x - 5$
4) 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 $x^2 + 3x - 10$
5) 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 $[5, \infty)$
6) $\tan^2 x =$ ☐ A $1 + \sec^2 x$ ☐ B $-\sec^2 x - 1$ ☒ C $\sec^2 x - 1$ ☐ D $1 - \sec^2 x$
7) The solution of the inequality $5x + 3 < 3x + 5$ is ☒ A $(-\infty, 1)$ ☐ B $(-\infty, 4]$ ☐ C $(-\infty, 4)$ ☐ D $(-\infty, 1]$
8) If $f(x) = x^2 + 7x + 10$, $g(x) = x + 2$, and $x \neq -2$, then $(\frac{f}{g})(x) =$ ☐ A $5 - x$ ☒ B $x + 5$ ☐ C $-x - 5$ ☐ D $x - 5$
9) If $f(x) = \sqrt{x}$, and $g(x) = \sin x^2$, then $(f \circ g)(x) =$ ☐ A $\sqrt{\sin x}$ ☐ B $\sin x$ ☒ C $\sqrt{\sin x^2}$ ☐ D $\sin \sqrt{x}$
10) $(-3, 2) \setminus [0, 5) =$ ☐ A $(-3, 0]$ ☒ B $(-3, 0)$ ☐ C $(2, 5)$ ☐ D $[2, 5)$
11) The function $f(x) = 4x^3 + x^2 + 1$ is ☐ A Even ☐ B Odd ☐ C Even and odd ☒ D Neither even nor odd
12) The solution of the inequality $x^2 - x - 2 > 0$ is ☒ A $(-\infty, -1) \cup (2, \infty)$ ☐ B $(-\infty, -1] \cup [2, \infty)$ ☐ C $(-\infty, -2) \cup (1, \infty)$ ☐ D $(-\infty, -2] \cup [1, \infty)$

13) 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 $\mathbf{R} \setminus \{2, 5\}$
14) $240^\circ =$			
☒ A $\frac{4\pi}{3}$ rad.	☐ B $\frac{5\pi}{3}$ rad.	☐ C $\frac{5\pi}{6}$ rad.	☐ D $\frac{2\pi}{3}$ rad.
15) $\frac{4\pi}{3}$ rad =			
☐ A 120°	☐ B 150°	☒ C 240°	☐ D 300°
16) The solution of the inequality $-2 < 3x - 5 < 7$ is			
☒ A $(1, 4)$	☐ B $[1, 4]$	☐ C $[1, 4)$	☐ D $(1, 4]$
17) $\frac{1}{\sin x} =$			
☐ A $\cot x$	☐ B $\tan x$	☐ C $\sec x$	☒ D $\csc x$
18) 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 $\frac{5}{7}$
19) Find the domain of the function $f(x) = \sqrt[3]{2-x}$.			
☐ A $(-\infty, 2]$	☐ B $[2, \infty)$	☒ C $\mathbf{R} = (-\infty, \infty)$	☐ D $[-2, \infty)$
20) The equation of the line passes through the points $(-1, 3)$ and $(1, 7)$ is			
☐ A $y = 2x - 5$	☐ B $y = 2x + 1$	☐ C $y = 2x - 1$	☒ D $y = 2x + 5$
21) Find the domain of the function $f(x) = \sqrt{2-x^2}$.			
☐ A $(-\infty, -\sqrt{2}] \cup [\sqrt{2}, \infty)$	☐ B $(-\infty, -\sqrt{2}) \cup (\sqrt{2}, \infty)$	☒ C $[-\sqrt{2}, \sqrt{2}]$	☐ D $(-\sqrt{2}, \sqrt{2})$
22) Find the equation of the line through the point $(-1, 3)$ with slope -2 .			
☐ A $y = -2x - 5$	☐ B $y = -2x + 5$	☒ C $y = -2x + 1$	☐ D $y = -2x - 1$
23) $\tan\left(\frac{\pi}{6}\right) =$			
☐ A $\sqrt{3}$	☐ B $\frac{\sqrt{3}}{2}$	☒ C $\frac{1}{\sqrt{3}}$	☐ D $\frac{2}{\sqrt{3}}$
24) The solution of the inequality $ x - 7 \leq 2$ is			
☒ A $[5, 9]$	☐ B $(5, 9)$	☐ C $(-\infty, 5) \cup (9, \infty)$	☐ D $(-\infty, 5] \cup [9, \infty)$

25)	The solution of the inequality $ x - 7 \geq 2$ is			
☐ A	$[5, 9]$	☐ B	$(5, 9)$	☐ C $(-\infty, 5) \cup (9, \infty)$ ☒ D $(-\infty, 5] \cup [9, \infty)$
26)	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 $x^3 + 3x^2 + 10$
27)	Find the range of the function $f(x) = \sqrt{x - 2}$.			
☐ A	$(-\infty, 0]$	☐ B	$\mathbf{R} = (-\infty, \infty)$	☒ C $[0, \infty)$ ☐ D $[2, \infty)$
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 distance between the points $(-2, 1)$ and $(2, -1)$ is			
☒ A	$2\sqrt{5}$	☐ B	$3\sqrt{5}$	☐ C $\sqrt{6}$ ☐ D 2
30)	The function $f(x) = \log_5 x$ is			
☐ A	Power	☐ B	Exponential	☒ C Logarithmic ☐ D Trigonometric