

Solved

(B)

King Abdul Aziz University Faculty of Sciences Mathematics Department
 Math 110 First Test Fall 2012 (30 Marks) Time 90 m
 Student Name: Student Number: B

1) The solution of the inequality $x^2 + 5x + 6 \geq 0$ is
☐ A $(-\infty, -3) \cup (-2, \infty)$ ☒ B $(-\infty, -3] \cup [-2, \infty)$
☐ C $(-3, -2)$ ☐ D $[-3, -2]$

2) If $|x - 6| = 2$, then $x =$
☐ A -8 ☐ B -8 or -4 ☒ C 4 or 8 ☐ D -4

3) The solution of $x^3 - 7x^2 + 6x = 0$ is
☐ A $-6, 0$ or 1 ☐ B $-1, 0$ or 6
☐ C $-6, -1$ or 0 ☒ D $0, 1$ or 6

4) Find the domain of the function $f(x) = \sqrt{4 - x^2}$.
☐ A $(-2, 2)$ ☒ B $[-2, 2]$
☐ C $(-\infty, -2) \cup (2, \infty)$ ☐ D $(-\infty, -2] \cup [2, \infty)$

5) Find the range of the function $f(x) = \sqrt{4 - x^2}$.
☒ A $[0, 2]$ ☐ B $\mathbb{R} = (-\infty, \infty)$
☐ C $[2, \infty)$ ☐ D $(-\infty, 2]$

6) Find the equation of the line through the point $(4, 3)$ with slope $-\frac{5}{2}$.
☐ A $2y - 5x + 14 = 0$ ☒ B $2y + 5x - 26 = 0$
☐ C $5y + 2x - 23 = 0$ ☐ D $5y - 2x - 7 = 0$

7) The solution of the inequality $|2x - 4| < 6$ is
☐ A $(-\infty, -1) \cup (5, \infty)$ ☐ B $(-\infty, -1] \cup [5, \infty)$
☐ C $[-1, 5]$ ☒ D $(-1, 5)$

8) The solution of the inequality $|2x - 4| \geq 6$ is
☐ A $(-\infty, -1) \cup (5, \infty)$ ☒ B $(-\infty, -1] \cup [5, \infty)$
☐ C $[-1, 5]$ ☐ D $(-1, 5)$

9) The function $f(x) = 5x^3 + 6$ is
☐ A Even ☐ B Odd ☐ C Even and odd ☒ D Neither even nor odd

10) Find the domain of the function $f(x) = \frac{x+9}{x^2+5x+6}$. $x^2+5x+6 = (x+3)(x+2)$
☐ A $\mathbb{R} \setminus \{-6, -1\}$ ☒ B $\mathbb{R} \setminus \{-3, -2\}$
☐ C $\mathbb{R} \setminus \{2, 3\}$ ☐ D $\mathbb{R} \setminus \{1, 6\}$

11)	The function $f(x) = -2x^3 + 3x^2 + 1$ is			
☒ A	cubic	☐ B	quadratic	☐ C linear ☐ D constant
12)	$(-2, 11) \cap (-4, 9] =$			
☒ A	$(-2, 9]$	☐ B	$(-4, 11)$	
☐ C	$(-4, 11]$	☐ D	$[-2, 9)$	
13)	Find the domain of the function $f(x) = \sqrt[3]{x+2}$.			
☐ A	$(-\infty, -2]$	☐ B	$[2, \infty)$	☒ C $\mathbb{R} = (-\infty, \infty)$ ☐ D $[-2, \infty)$
14)	If $f(x) = \sqrt{x}$, and $g(x) = x + 3$, then $(f \circ g)(x) =$			
☐ A	$x + 9$	☒ B	$\sqrt{x+3}$	
☐ C	$(x+3)\sqrt{x}$	☐ D	$\sqrt{x} + 3$	
15)	If $f(x) = 8 + x^2$, and $g(x) = 9$, then $(g - f)(x) =$			
☒ A	$1 - x^2$	☐ B	$17 - x^2$	
☐ C	$1 + x^2$	☐ D	$-x^2 - 1$	
16)	If the graph of the function $f(x) = x^2$ is shifted a distance 2 units downward, then the new graph represented the graph of the function is			
☐ A	$(x+2)^2$	☐ B	$(x-2)^2$	
☐ C	$x^2 + 2$	☒ D	$x^2 - 2$	
17)	If $2(x - 5) + 8 = 5x + 3$, then $x =$			
☒ A	$-\frac{5}{3}$	☐ B	$\frac{1}{3}$	
☐ C	$-\frac{5}{7}$	☐ D	$-\frac{7}{3}$	
18)	The distance between the points $(-2, 2)$ and $(5, 3)$ is			
☐ A	7	☐ B	5	☒ C $5\sqrt{2}$ ☐ D $2\sqrt{5}$
19)	The slope the line perpendicular to the line $2y + 5x - 26 = 0$ is			
☒ A	$\frac{2}{5}$	☐ B	$-\frac{2}{5}$	☐ C $\frac{5}{2}$ ☐ D $-\frac{5}{2}$
20)	The slope of the line passes through $(7, -6)$ and is $(3, 4)$			
☐ A	$\frac{2}{5}$	☐ B	$-\frac{2}{5}$	
☐ C	$\frac{5}{2}$	☒ D	$-\frac{5}{2}$	

21)	The solution of the inequality $-3x + 2 > -7$ is		
☒ A	$(-\infty, 3)$	☐ B	$(3, \infty)$
☐ C	$[3, \infty)$	☐ D	$(-\infty, 3]$
22)	Find the domain of the function $f(x) = \sqrt{x-5} + \sqrt{x+2}$.		
☐ A	$[-5, \infty)$	☐ B	$[-2, \infty)$
☒ C	$[5, \infty)$	☐ D	$[2, \infty)$
23)	Find the equation of the line with slope 2 and y-intercept -3 is.		
☐ A	$y = -2x + 3$	☐ B	$y = -2x - 3$
☐ C	$y = 2x + 3$	☒ D	$y = 2x - 3$
24)	The solution of the inequality $-13 < 5 - 3x \leq 11$ is		
☐ A	$(-2, 6)$	☐ B	$[-2, 6]$
☒ C	$[-2, 6)$	☐ D	$(-2, 6]$
25)	If $f(x) = x^2$, and $g(x) = \sqrt{4-x}$, then $(\frac{f}{g})(x) =$		
☒ A	$\frac{x^2}{\sqrt{4-x}}$	☐ B	$\frac{\sqrt{4-x}}{x^2}$
☐ C	$\sqrt{4-x^2}$	☐ D	x^2
26)	If $f(x) = x^2$, and $g(x) = \sqrt{4-x}$, then $D_{\frac{f}{g}} =$		
☐ A	$(-\infty, 4]$	☒ B	$(-\infty, 4)$
☐ C	$(-\infty, 0) \cup (0, 4]$	☐ D	$\mathbb{R} = (-\infty, \infty)$
27)	If $f(x) = x + 1$, and $g(x) = x + 3$, then $(fg)(x) =$		
☐ A	$x^2 - 4x + 3$	☒ B	$x^2 + 4x + 3$
☐ C	$x^2 - 2x - 3$	☐ D	$x^2 + 2x - 3$
28)	The function $f(x) = x^2$ is increasing on		
☒ A	$(0, \infty)$	☐ B	$(-\infty, 0)$
☐ C	$(-\infty, \infty)$	☐ D	Nowhere
29)	The distance between the real numbers $\frac{1}{2}, -\frac{3}{5}$ is		
☒ A	$\frac{11}{10}$	☐ B	$\frac{1}{10}$
☐ C	$\frac{11}{20}$	☐ D	$-\frac{11}{10}$
30)	$ \pi - 2 =$		
☒ A	$\pi - 2$	☐ B	$2 - \pi$
☐ C	$-\pi - 2$	☐ D	$\pi + 2$