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

1) The function $f(x)=x^5$ is

A Power B Exponential C Logarithmic D Trigonometric

2) 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 $(-\infty,-2]\cup[1,\infty)$

3) Find the range of the function $f(x)=\sqrt{x-1}$.

A $[0,\infty)$ B $(-\infty,0]$ C $\mathbf{R}=(-\infty,\infty)$ D $[1,\infty)$

4) If $f(x)=\sqrt{x}$, and $g(x)=\tan x^2$, then $(f\circ g)(x)=$

A $\tan x$ B $\sqrt{\tan x}$ C $\tan\sqrt{x}$ D $\sqrt{\tan x^2}$

5) The function $f(x)=5x^3+7$ is

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

6) The solution of the inequality $|x-5|<2$ is

A $(3,7)$ B $[3,7]$ C $(-\infty,3]\cup[7,\infty)$ D $(-\infty,3)\cup(7,\infty)$

7) The solution of the inequality $|x-5|>2$ is

A $(3,7)$ B $[3,7]$ C $(-\infty,3]\cup[7,\infty)$ D $(-\infty,3)\cup(7,\infty)$

8) The slope the line perpendicular to the line $7y-5x-1=0$ is

A $-\frac{5}{7}$ B $\frac{7}{5}$ C $-\frac{7}{5}$ D $\frac{5}{7}$

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

A $2\sqrt{2}$ B $\sqrt{6}$ C $2\sqrt{10}$ D 6

10) 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 $y=5x-2$

11) The solution of the inequality $-2<3x-5\le 7$ is

A $(1,4)$ B $[1,4]$ C $[1,4)$ D $(1,4]$

12) Find the domain of the function $f(x)=\frac{x+9}{x^2-7x+10}$.

A $\mathbf{R}\setminus\{-2,5\}$ B $\mathbf{R}\setminus\{-5,-2\}$ C $\mathbf{R}\setminus\{-5,2\}$ D $\mathbf{R}\setminus\{2,5\}$

13) Find the equation of the line through the point $(-1,3)$ with slope -2.

A $y=-2x+1$ B $y=-2x+5$ C $y=-2x-1$ D $y=-2x-5$

14) If $|x+3|=5$, then $x=$

[A] -8 or -2 [B] -8 or 2 [C] -2 or 8 [D] 2 or 8

15) The equation of the line passes through the points $(-1,3)$ and $(1,7)$ is

[A] $y=2x+5$ [B] $y=2x-5$ [C] $y=2x-1$ [D] $y=2x+1$

16) $\dfrac{1}{\cot x}=$

[A] $\cot x$ [B] $\tan x$ [C] $\sec x$ [D] $\csc x$

17) The solution of the inequality $5x+3\geq 3x+5$ is

[A] $[4,\infty)$ [B] $(1,\infty)$ [C] $[1,\infty)$ [D] $(4,\infty)$

18) If $f(x)=x^2+3x-10$, $g(x)=x+5$, and $x\neq -5$, then $(\dfrac{f}{g})(x)=$

[A] $x+2$ [B] $2-x$ [C] $x-2$ [D] $-x-2$

19) If $\cos(x)=\dfrac{3}{4}$, and $0<x<\dfrac{\pi}{2}$, then $\cot(x)=$

[A] $\dfrac{\sqrt{7}}{3}$ [B] $\dfrac{3}{\sqrt{7}}$ [C] $\dfrac{\sqrt{7}}{4}$ [D] $\dfrac{4}{\sqrt{7}}$

20) Find the domain of the function $f(x)=\sqrt[5]{x-2}$.

[A] $\mathbf{R}=(-\infty,\infty)$ [B] $(-\infty,2]$ [C] $[2,\infty)$ [D] $[-2,\infty)$

21) 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

22) $\sec\left(\dfrac{\pi}{6}\right)=$

[A] $\sqrt{3}$ [B] $\dfrac{\sqrt{3}}{2}$ [C] $\dfrac{1}{\sqrt{3}}$ [D] $\dfrac{2}{\sqrt{3}}$

23) Find the domain of the function $f(x)=\dfrac{x+5}{\sqrt{x^2-2}}$.

[A] $\left(-\infty,-\sqrt{2}\right]\cup\left[\sqrt{2},\infty\right)$ [B] $\left(-\infty,-\sqrt{2}\right)\cup\left(\sqrt{2},\infty\right)$

[C] $\left[-\sqrt{2},\sqrt{2}\right]$ [D] $\left(-\sqrt{2},\sqrt{2}\right)$

24) If the graph of the function $f(x)=7^x$ is shifted a distance 5 units to the downward, 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

25) 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] $x^2+3x-10$

26) 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] $[5,\infty)$

27) $120^0 =$

[A] $\frac{4\pi}{3}$ rad. [B] $\frac{5\pi}{3}$ rad. [C] $\frac{5\pi}{6}$ rad. [D] $\frac{2\pi}{3}$ rad.

28) $\frac{2\pi}{3}$ rad $=$

[A] 120^0 [B] 150^0 [C] 240^0 [D] 300^0

29) $[0,5)\setminus(-3,2) =$

[A] $(-3,0]$ [B] $(-3,0)$ [C] $(2,5)$ [D] $[2,5)$

30) $\sec^2 x =$

[A] $1+\tan^2 x$ [B] $-\tan^2 x-1$ [C] $\tan^2 x-1$ [D] $1-\tan^2 x$