King Abdul Aziz University
Faculty of Sciences
Mathematics Department

First Test Fall 2008 — Math 110 — A

Name : ID No.:

1) The real number in $\mathbb{R}$ is

[A] $-\sqrt{-2}$ [B] $\sqrt{-1}$

[C] $\sqrt{-3}$ [D] ✓ $\sqrt{49}$

2) $|2-\pi| =$

[A] $2-\pi$ [B] ✓ $\pi-2$

[C] $-\pi-2$ [D] $\pi+2$

3) The solution of $|x-4| \le 10$ is $-10 \le x-4 \le 10$ $+4$ $+4$

$-6 \le x \le 14$

[A] $(-\infty,-6]\cup[14,\infty)$ [B] $(-\infty,-14]\cup[6,\infty)$

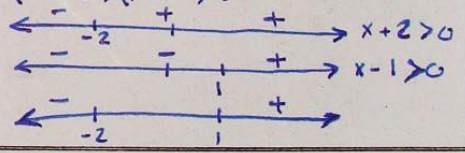
[C] ✓ $[-6,14]$ [D] $(-6,14)$

4) The solution set of $-2x+3 \le -15$ is $\frac{-2x}{-2} \le \frac{-18}{-2}$ $x \ge 9$

[A] $(9,\infty)$ [B] $(-\infty,9]$

[C] $(-\infty,9)$ [D] ✓ $[9,\infty)$

5) The solution set of $x^2+x-2>0$ is $(x+2)(x-1)>0$



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

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

6) The solution set of $|x-1|>2$ is $+1$ $-2 > x-1 > 2+1$

$-1 > x > 3$

[A] $(-\infty,-1]\cup[3,\infty)$ [B] $(-\infty,-3)\cup(1,\infty)$ $x<-1$ or $x>3$

[C] $(-1,3)$ [D] ✓ $(-\infty,-1)\cup(3,\infty)$

7) The distance between the points $(\overset{x_1}{1},\overset{y_1}{-2})$ and $(\overset{x_2}{-3},\overset{y_2}{1})$ is

$d = \sqrt{(-3-1)^2+(1+2)^2} = \sqrt{16+9}$

$= \sqrt{25}$

[A] ± 5 [B] -5

[C] ✓ 5 [D] $\sqrt{13}$

8) The function $f(x) = \frac{x^2+x-1}{x-3}; x \ne 3$ is

[A] Quadratic [B] Polynomial كثيرة حدود

[C] Radical [D] ✓ Rational كسرية

$|x| = \begin{cases} x & x \ge 0 \\ -x & x < 0 \end{cases}$

9) The function $f(x)=x^3+3x^2-2x+1$ is

A Quadratic تربيعي B Cubic تكعيبي

C Linear خطية D Constant ثابت

10) The solution of the equation $x^2-x-6=0$ is

A $-2,3$ B $-3,2$ C $-1,6$ D $-6,1$

$(x-3)(x+2)=0$

$x=3$ or $x=-2$

11) The points of intersection of the parabola $y=x^2+2x-5$ and the line $y=x+1$ are

$(2,3)$ $(-3,-2)$

A $(3,4)$ & $(-2,-1)$ B $(2,3)$ C $(-3,-2)$ & $(2,3)$ D $(-3,-2)$

$x^2+2x-5=x+1$

$x^2+2x-x-5-1=0$

$x^2+x-6=0$

$(x+3)(x-2)=0$

$x=2$ $(2,3)$

$x=-3$ $(-3,-2)$

12) The domain of $f(x)=x^2-4$ is

A $(-\infty,\infty)=\mathbb{R}$ B $(-\infty,-2]\cup[2,\infty)$

C $[-2,2]$ D $(-2,2)$

13) The domain of $f(x)=\dfrac{x-5}{x^2-5x+6}$ is

$(x-3)(x-2)=0$

$x=3$ or $x=2$

A $(-2,-3)$ B $(2,3)$

C $\mathbb{R}\setminus\{2,3\}$ D $\mathbb{R}\setminus\{-2,-3\}$

14) The domain of $f(x)=\dfrac{x+3}{x^2+1}$ is

A $(-1,1)$ B $\mathbb{R}\setminus\{-1\}$

C $\mathbb{R}\setminus\{\pm1\}$ D $(-\infty,\infty)=\mathbb{R}$

15) The domain of $f(x)=\sqrt[3]{x-1}$ is

A $[1,\infty)$ B $(-\infty,\infty)=\mathbb{R}$

C $(-\infty,1]$ D $(1,\infty)$

16) Let $f(x)=\sqrt{x-2}$, and $g(x)=\sqrt{x}$. Then $D_{\frac{g}{f}}$ is

A $(2,\infty)$ B $[2,\infty)$

C $(-\infty,2]$ D $(0,\infty)$

17) The y-intercepts of $y=x^2-2x-8$ is

A $y=8$ B $y=-4,2$

C $x=-8$ D $y=-8$

18) Let $f(x)=\sqrt{x-2}$, and $g(x)=\sqrt{x}$. Then $D_{(f+g)}$ is

A $(-\infty,\infty)=\mathbb{R}$ B $[2,\infty)$

C $(-\infty,2]$ D $(2,\infty)$

$(\sqrt{x-2})^2+1 \Rightarrow x-2+1$ $\quad x-1$

19) Let $f(x)=\sqrt{x-2}$, and $g(x)=x^2+1$. Then $(g\circ f)(x)$ is

A $(g\circ f)(x)=x-1$ B $(g\circ f)(x)=(x^2+1)\sqrt{x-2}$

C $(g\circ f)(x)=\sqrt{x^2-1}$ D $(g\circ f)(x)=x+1$

20) Let $f(x)=\sqrt{x-2}$, and $g(x)=x^2+1$. Then $D_{(g\circ f)}$ is

A $[0,2]$ B $(2,\infty)$

C $(0,2]$ D $[2,\infty)$

21) Let $f(x)=x^2+1$, and $g(x)=x^2-2$. Then $(fg)(x)$ is $x^4-2x^2+x^2-2$ $\quad x^4-x^2-2$

A $(fg)(x)=x^4+x^2-2$ B $(fg)(x)=x^4-x^2-2$

C $(fg)(x)=x^4-x^2+x-2$ D $(fg)(x)=x^4-3x^2-2$

22) The equation of the line passes through the point $(-2,1)$ with slope -2 is $y=-2(x+2)+1$ $\quad y=m(x-x_0)+y_0$ $\quad y=-2x-4+1$ $\quad -2x-3$

A $y=2x+5$ B $y=-2x-3$

C $y=-2x-5$ D $y=-2x+3$

23) The equation of the line passes through the point $(-2,1)$ and Parallel (متوازي) to the line $y=5x+3$ is $y=5(x+2)+1$ $\quad y=5x+10+1$ $\quad y=5x+11$

A $y=5x+11$ B $y=5x+9$

C $y=5x+1$ D $y=-5x-11$

24) The equation of the line passes through the point $(-2,1)$ and perpendicular (متعامد) to the line $y=5x+3$ is $m_1\cdot m_2=-1$ $\quad m_1=5$ $\quad 5m_2=-1$ $\quad m_2=\frac{-1}{5}$ $\quad m_1\cdot m_2=-1$

A $y=-\frac{1}{5}x+\frac{3}{5}$ B $y=-\frac{1}{5}x+3$

C $y=\frac{1}{5}x+\frac{7}{5}$ D $y=-\frac{1}{5}x-\frac{3}{5}$

$-\frac{1}{5}(x+2)+1$ $\quad y=-\frac{1}{5}x-\frac{2}{5}+1$ $\quad y=-\frac{1}{5}x+\frac{3}{5}$ $\quad \frac{5}{5}-\frac{2}{5}=\frac{3}{5}$

25) If $f(x)=\dfrac{\sqrt[3]{x-4}}{3x-2}$, then $f(-4)=$ $\quad -8$ $\quad \frac{-2}{-14}$ $\quad \frac{1}{7}$ $\quad -12$ $\quad -2*-2*-2$ $\quad -2$

A $\frac{1}{7}$ B $\frac{2}{9}$

C undefined D $-\frac{1}{7}$

$\frac{\sqrt[3]{-4-4}}{3(-4)-2}=\frac{\sqrt[3]{-8}}{-12-2}=\frac{-2}{-14}=\frac{1}{7}$

26) The equation of the line passes through the points $(1,-2)$ and $(-3,1)$ is

A $y=\frac{3}{4}x-\frac{5}{4}$

B $y=-\frac{3}{4}x-\frac{5}{4}$

C $y=-\frac{1}{4}x-\frac{5}{4}$

D $y=-\frac{3}{4}x-\frac{3}{4}$

27) $1-\sin^2 x =$

A $\frac{1-\cos(2x)}{2}$

B $\frac{1+\cos(2x)}{2}$

C $\frac{1-\cos(x)}{2}$

D $1-\cos(2x)$

28) $\sin(\frac{\pi}{4}) =$

A 2

B $\frac{1}{2}$

C $\frac{\sqrt{2}}{2}$

D $-\frac{\sqrt{2}}{2}$

29) If $x=\frac{4\pi}{3}$, then $x =$

A 270°

B 120°

C 180°

D 240°

30) If $x=270^\circ$, then $x =$

A $\frac{2\pi}{3}$

B $\frac{\pi}{6}$

C $\frac{3\pi}{2}$

D $\frac{4\pi}{3}$

With best wishes