Revision sheet: Calculus 1

Choose the correct answer

Question 1: The solution set of $2x^2 + x - 2 \leq x^2 + 2x$ is:

(a) $(-1;\ 2)$ (b) $[-1; 2]$ (c) $(-1;\ 2]$ (d) $[\ 1; 2\ ]$

Question 2: The natural domain of $f(x) = \frac{x-1}{x-2}$ is:

(a) $D_f = \mathbb{R} - \{1\}$ (b) $D_f = \mathbb{R} - \{1; 2\}$ (c) $D_f = \mathbb{R} - \{2\}$ (d) $D_f = \mathbb{R}$

Question 3: The natural domain of $g(x) = \frac{1}{x} + \sqrt{x}$ is:

(a) $D_g = (-\infty;\ 0)$ (b) $D_f = (-\infty;\ 0]$ (c) $D_g = [0;\ \infty)$ (d) $D_g = (0;\ \infty)$

Question 4: If $f(x) = \sqrt{x} + 2$ and $g(x) = x + 1$ then $(fog)(x) =$

(a) $\sqrt{x} + 3$ (b) $\sqrt{x+1} + 2$ (c) $\sqrt{x+3}$ (d) $x + \sqrt{x} + 3$

Question 5: : $\tan(\frac{\pi}{3}) =$

(a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) 0 (d) $\sqrt{3}$

Question 6: $1 + cot^2\theta =$

(a) $cos^2\theta$ (b) $sin^2\theta$ (c) $sec^2\theta$ (d) $csc^2\theta$

Question 7: The solution of $|2x + 5| \leq 3$ is

(a) $(-4.; -1)$ (b) $[-4; -1]$ (c) $[-1;\ 2]$ (d) $[\ -1; 2\ )$

Question 8: The solution of $|2x + 5| > 1$ is

(a) $(-\infty;\ -3) \cup (-2;\ \infty)$ (b) $[-4; -1]$ (c) $[-2;\ -3]$ (d) $[\ -2; -3\ )$

Question 9: $\lim_{x\to 5}\left(\frac{x^2+2x-35}{x-5}\right) =$

(a) 12 (b) 2 (c) 10 d) 11

Question 10: $\lim_{x\to\infty}\left(\frac{x^2-2}{3+x^5}\right) =$

(a) $\frac{1}{3}$ (b) $\frac{-2}{3}$ (c) 0 d) 1

Question 11: $\lim_{x\to\infty}\left(\frac{3x^2+2x-1}{2+5x^2}\right) =$

(a) $\frac{3}{5}$ (b) $\frac{2}{5}$ (c) 0 d) 1

Question 12: The vertical asymptote of the function $f(x) = \frac{x-3}{x-2}$ is

(a) $x = 1$ (b) $x = 2$ (c) $x = 3$ (d) $x = 0$

Question 13: The horizontal asymptote of the function $f(x) = \frac{x-3}{x-2}$ is

(a) $y = 1$ (b) $y = 2$ (c) $y = 3$ (d) $y = 0$

Question 14: $\lim_{x\to 3^+}\left(\frac{1}{x^2-5x-6}\right) =$

(a) $-\infty$ (b)$+\infty$ (c) 0 d) 1

Question 15: The function $f(x) = \frac{(x-3)(x-1)}{x-2}$ is not continuous at

(a) $x = 1$ (b) $x = 2$ (c) $x = 3$ (d) $x = 0$

Question 16: Which of the following is an even function

(a) $\sin x$ (b) $\cos x$ (c) $x + 1$ (d) $\tan x$

Question 17: The solution of $|2x + 1| \leq |x + 2|$ is

(a) $[-1;\ 1]$ (b) $[-4; -1]$ (c) $[-1;\ 2]$ (d) $[\ 1; 2\ )$

Question 18: Which of the following function is continuous at $= 1$?

(a) $f(x) = \begin{cases} \frac{x^2-1}{x-1}; x \neq 1 \\ 3\ ; x = 1 \end{cases}$ (b) $g(x) = \frac{x^2-1}{x-1}$ (c) $f(x) = \begin{cases} \frac{x^2-1}{x-1}; x \neq 1 \\ 2\ ; x = 1 \end{cases}$