مدونة المناهج السعودية

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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

Choose the correct answer:

1) $f(x) = \frac{3x-5}{2x-2}$ is discontinuous at $x =$

$A) -1 \qquad B) 2 \qquad C) 1 \qquad D) -2$

2) $\lim_{x\to\infty} cos^{-1}\left(\frac{x-2}{2x-4}\right) =$

$A) -\frac{\pi}{2} \qquad B) \frac{\pi}{2} \qquad C) -\frac{\pi}{3} \qquad D) \frac{\pi}{3}$

3) $f(x) = \begin{cases} \frac{x^3-1}{x-1}, & x < 1 \\ -x^2 + 2x + 1, & x \geq 1 \end{cases}$ is continuous at $x = 1$

$A)\ True \qquad B)\ False$

4) The value of k that makes $f(x) = \begin{cases} \frac{x^2-k^2}{x-k}, & x \neq k \\ -2, & x = k \end{cases}$ continuous is $k =$

$A) -1 \qquad B) 1 \qquad C) 2 \qquad D) -2$

5) If $y = x^3e^x - 8,\ then\ y' =$

$A) (x^3 - 3x^2)e^x \qquad B) (x^3 + 3x)e^x$

$C) (x^3 + 3x^2)e^x \qquad D)(x^2 + 2x)e^x$

6) The function $f(x) = x^2 + x + 1$ has a 4 in the interval [1,2].

$A)\ True \qquad B)\ False$

7) If $y = (2x-1)^3$, then $y' =$

A) $-3(2x-1)$ B) $-6(2x-1)^2$

C) $6(2x-1)^2$ D) $3(2x-1)$

8) $D_x^{39}(sinx) =$

A) $-cosx$ B) $cosx$ C) $sinx$ D) $-sinx$

9) If $f(x) = \frac{1-3x}{4x-1}$, then $f'(0) =$

A) -1 B) 2 C) -2 D) 1

10) The equation of the tangent line to $f(x) = 3x^2 - 4$ at $(1,-1)$ is:

A) $y = 6x - 7$ B) $y = -6x - 1$

C) $y = -6x + 1$ D) $y = -6x - 7$

11) $\frac{d^2}{dx^2}(e^{-6x}) =$

A) $-36e^{-6x}$ B) $6e^{-6x}$ C) $-6e^{-6x}$ D) $36e^{-6x}$

12) If $y = sec^2(4x)$, then $y' = 4sec^2(4x)\,tan(4x)$

A) True B) False

13) If $y = secx\,cotx$, then $y' =$

A) $cscx\,cotx$ B) $-cscx\,cotx$ C) $cscxtanx$ D) $-cscxtanx$

14) If $y = t^2$ and $x = \frac{t-1}{t+1}$, then $\frac{dy}{dx} =$

A) $-t(t+1)^2$ B) $t(t+1)^2$

C) $-t(t-1)^2$ D) $t(t-1)^2$

15) If $f(y) = h(g(y))\,, g(2) = 1\,, h'(1) = 6$ & $g'(2) = 4$, then $f'(2) =$

$A) -24$ $B)24$ $C)12$ $D) -12$

16) $y = cscx\ secx$, then $y =$

$A) cscx\ (tanx - cotx)$ $B)\ secx(tanx - cotx)$

$C) cscx\ secx(tanx - cotx)$ $D) -\ cscx\ secx(tanx - cotx)$

17) The slope of the tangent to the curve $x^3\ y = 3$ at the point (1,3) is

$A) -9$ $B)9$ $C)6$ $D) -6$

18) If $ln(2x + y) = 7x^2 + 3$, then $y' =$

$A) 14x(x + y) + 2$ $B) 1 + 12x(x - y)$

$C) 12x(x + y)$ $D) 14x(2x + y) - 2$

19) If $y = log_5(secx)$, then $y' =$

$A) -\frac{cotx}{ln5}$ $B) \frac{cotx}{ln5}$ $C) \frac{tanx}{ln5}$ $D) -\frac{tanx}{ln5}$

20) If $y = 3x^3 - 4x^2 + 4x$, then $\frac{d^3}{dx^3}(y) =$

$A) 0$ $B) 18$ $C) 18x$ $D) 9x$

21) If $y = x^{4x-2}$, then $y' = x^{4x-2}\left(\frac{4x-2}{x} + lnx\right)$

$A)\ True$ $B)\ False$

22) $\lim_{x\to 0} \frac{e^x - e^{-x}}{x} =$

$A) -1$ $B)2$ $C)1$ $D) -2$

23) The absolute minimum of $f(x) = 3x^{\frac{2}{3}} - 2x$ on $[-1,8]$ *is* $y =$

$A)0 \qquad B)5 \qquad C)1 \qquad D)-4$

24) The value of c of $f(x) = f(x) = 4 + \sqrt{x-1}$ in the interval$(2,5)$ such that $f'(c) = \frac{f(5)-f(2)}{5-2}$ *is*

$A)\frac{\sqrt{13}}{2} \qquad B)-\frac{\sqrt{13}}{2} \qquad C)-\frac{13}{4} \qquad D)\frac{13}{4}$

25) The value of c of $f(x) = x^2 + 9$ in the interval $[-1,1]$ such that $f'(c) = 0$ is

$A)1 \qquad B)3 \qquad C)-3 \qquad D)0$

26) The absolute maximum of $f(x) = x^3 - \frac{3}{2}x^2 + 1$ on $[-2,2]$ *is* $y =$

$A)3 \qquad B)-3 \qquad C)4 \qquad D)-4$

27) The function $f(x) = \frac{x}{x^2+1}$ is decreasing on the interval

A)$(-\infty,-1) \cup (0,1)$ B) $(-1,0) \cup (1,\infty)$

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

28) The point of inflection of the function $f(x) = \frac{x}{x^2-1}$ at $x =$

A) -1 B) $-1,1$ C) 0 D)1

29) The graph of $f(x) = f(x) = 2 + 3x - 2x^2$ on the interval $(-2,2)$ is

A) concave up B) concave down

30) The graph of $f(x) = sinx$ on the interval $(\pi, 2\pi)$ is

A) concave up B) concave down

31) The set of critical numbers of $f(x) = \frac{x^2-4}{x^3}$ is

A) $\{-12, 12\}$ B) $\{0, -\sqrt{12}\}$ C) $\{0, \sqrt{12}\}$ D) $\{-\sqrt{12}, \sqrt{12}\}$

32) $\int_5^5 \frac{dx}{x-5} = 0$

A) *True* B) *False*

33) $\int_{-5\pi}^{5\pi} \cos\left(\frac{x}{5}\right) dx =$

A) 0 B) 3 C) 4 D) -3

34) $\int \csc^2\left(\frac{x}{5}\right) dx =$

A) $\frac{\cot\left(\frac{x}{5}\right)}{5} + c$ B) $5\cot\left(\frac{x}{5}\right) + c$

C) $-\frac{\cot\left(\frac{x}{5}\right)}{5} + c$ D) $-5\cot\left(\frac{x}{5}\right) + c$

35) $\int 5^x dx = \frac{5^x}{\ln 5} + c$

A) *True* B) *False*

36) $\int_0^{\pi} sin(x)\,dx =$

$A)3 \qquad B)\ -3 \qquad C)-2 \qquad D)2$

37) $\int sec(2x)\,tan(2x)dx =$

$A) -\frac{sec(2x)}{2} + c \qquad B)\ 2sec(2x) + c$

$C)\frac{sec(2x)}{2} + c \qquad D) - 2sec(2x) + c$

38) $\int csc\left(\frac{x}{4}\right) cot\left(\frac{x}{4}\right) dx =$

$A) - 4csc\left(\frac{x}{4}\right) + c \qquad B)\ -\frac{1}{4}4csc\left(\frac{x}{4}\right) + c$

$C)\ 4csc\left(\frac{x}{4}\right) + c \qquad D)\frac{1}{4}4csc\left(\frac{x}{4}\right) + c$

39) $\int (2x-1)^4\,dx =$

$A) -\frac{1}{5}(2x-1)^5 + c \qquad B) -\frac{1}{10}(2x-1)^5 + c$

$C)\frac{1}{5}(2x-1)^5 + c \qquad D)\frac{1}{10}(2x-1)^5 + c$

40) $\int e^{-x}\,dx\ =$

$A)e^{-2x} \qquad B) - e^{-2x} \qquad C)\ e^{-x} \qquad D) - e^{-x}$

Complete:

41) The critical number of $f(x) = f(x) = 4x^2 + 4x$ is .....

.....

42) The absolute minimum of $f(x) = 3x^{\frac{2}{3}} - 2x$, on $[-1,8]$ is .....

.....

43) $f(x) = \frac{x}{2} + sinx$ in the interval $(0,2\pi)$ has local minimum at $x =$.....

.....

44) Find the interval on which $f(x) = ln(4 - x^2)$ is increasing.....

.....

45) The function $f(x) = \sqrt[5]{x}$ is differentiable on the interval.....

46) The value of c of $f(x) = x\sqrt{x+2}$ in the interval $[-2,0]$ such that $f'(c) = 0$ is.....

.....

47) $\int_{-\frac{3\pi}{4}}^{\frac{3\pi}{4}} sec^2\left(\frac{x}{3}\right) dx =$ ……

48) $\int \frac{1}{x^5}\, dx =$ ……

49) $\int_0^1 \frac{xdx}{\sqrt{x^2+1}} =$ ……

50) $\int \frac{dx}{2x-6} =$ ……

$\int e^x \, dx =$

$\int 5^x \, dx = \frac{5^x}{\ln 5} + c$ T or F

$\int \sin x \, dx = \cos x + c$ T or F

$\int \frac{dx}{x - 3} \, dx =$

1) The critical number of $F(x) = x^2 - x$ is .....

2) $f(x) = x^2 - x$ has Local minum at x=

3) The value of c of $F(x) = x\sqrt{x+4}$ in the interval $[-4, 0]$ such th $F'(c) = 0$ is

4) The interval on which $F(x) = \ln(7 - x^2)$ is increasing on.....

5) Verify Rolle's theorem for the function $F(x) = \sin 2x$ in $[0, \frac{\pi}{2}]$

6) $\int \sec^2(x)\, dx =$

7) $\int \frac{1}{x^3}\, dx =$

8) The point of inflection of the function $F(x) \frac{x}{x^2 - 1}$ at x=

a) $-1, 1$ b) 1 c) -1 d) 0

9) The graph of $f(x) = 3x^4 - 12x^3 - 7x$ on the interval $(0, 2)$ is

a) Concave up b) Concave down

10) $\int (5 + x)^3\, dx =$

- the value of c in Rolle's theorem $F(x) = e^x \sin x$ in the interval $[0, \pi]$ is

a) $\frac{3\pi}{4}$ B) $\frac{\pi}{6}$ c) $\frac{\pi}{4}$ D) $\frac{\pi}{2}$

- the critical point $F(x) = -7x + 1$ is

A) -7 B) $\frac{1}{7}$ c) non of these c) all real number

The absolute minimum of $f(x) = 2x^2 - 8x$ on $[0, 3]$ is $y =$

a) 8 b) -2 c) 2 D) -8

$F(x) = (x^2 - 1)^{\frac{3}{5}}$ is increasing

$[-1, 1]$ $(-1, 0) \cup (1, \infty)$

$(-\infty, -1) \cup (0, 1)$ $(-1, 1)$

$y = x^5 + 4x^4 + x$ $\frac{d^5 y}{dx^5} =$

a) 120 B) $60x$ c) $60x + 32$ d) 0

The value of c in Mean Value theorem for $F(x) = 2 - \frac{3}{x}$ in $(1, 3)$ is

a) $\sqrt{3}$ b) $-\sqrt{3}$ c) 3 d) -3

if $\ln(x + y) = x^2$, then $\frac{dy}{dx} = y' = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h} =$

a) $1 - 2x(x + y)$ b) $1 + 2x(x + y)$

c) $2x(x + y)$ d) $2x(x + y) - 1$

$F(x) = [x]$ is Continuous

a) 4, b) = 2, c) -2 d) 2.4