

ECAT Pre General Science Mathematics Chapter 18 Basic Concepts & Definitions Online Test

Sr	Questions	Answers Choice
1	If $y = 3x + 2\cos x$, then $dy/dx =$	A. $3 - 2\sin x$ B. $3 - \tan x$ C. $3x^2 - 2\sin x$ D. $3(1 - 4\sin x)$
2	$d/dx (\cos x \sin x) =$	A. $\cos^2 x - \sin^2 x$ B. $2\cos^2 x + \sin^2 x$ C. $2\cos^2 x - \sin^2 x$ D. $1 - \sin^2 x$
3	$d/dx (\operatorname{cosec} x)$	A. $-\sec x \tan x$ B. $\sin x \cos x$ C. $-\csc x \cot x$ D. $2\sin x \cos x$
4	$d/dx (\cot x) =$	A. $\sec x \tan x$ B. $-\csc^2 x$ C. $\sec^2 x$ D. $1/\cot^2 x$
5	$d/dx (\cos x^2) =$	A. $-2x \cos x$ B. $-2x \sin x$ C. $-2x \tan x$ D. $-2x \sec^2 x$
6	$d/dx [\tan^2 x]$	A. $2\tan x \sec^2 x$ B. $2\tan x \sec x$ C. $2 \cot x \tan x$ D. $2\sec^2 x \cos^2 x$
7	Differentiation of $\sin x$ w.r.t. $\cot x$ is:	A. $-\sin^2 x \sec x$ B. $-\cos x \sin^2 x$ C. $-\cos^2 x \tan x$ D. $-\sin^2 x$
8	If $f(x) = 1/x - 2$ then $f^{-1}(0)$ equals:	A. $-1/4$ B. $-3/2$ C. $-1/2$ D. $1/5$
9	If $f(x) = c$ then $f^{-1}(x)$ equals:	A. 1 B. 0 C. cx D. c
10	If $f(x) = x^{2/3}$ then $f^{-1}(x)$ at $x = 8$ equals:	A. 8 B. $1/8$ C. $1/3$ D. $2/3$
11	The derivative of $\sqrt{x}$ at $x = a$ is:	A. $1/2a$ B. $2/\sqrt{a}$ C. $2\sqrt{x}$ D. $1/2\sqrt{x}$
12	If $f(x) = 2x^3 + 1$ then $f^{-1}(0) =$	A. 0 B. 1 C. 6 D. None of these
13	If $x = 1 - t^2$ and $y = 3t^2 - 2t^3$ then $dy/dx =$	A. $(1-t)$ B. $3(1+t)$ C. $3(t-1)$ D. $3/1-t$
14	If $x = at^2$ and $y = 2at$ then $dy/dx =$	A. $2a/y$ B. $y/2a$ C. $-a/2y$ D. $-2y/a$

15	If $x^2 + y^2 = 1$, then dy/dx	A. y/x B. $-x/y$ C. $1/x$ D. None of these
16	If $3x + 4y + 7 = 0$, then $dy/dx =$	A. $-1/2$ B. $-4/3$ C. $7/2$ D. $-3/4$
17	If $y = (7x + 9)^2$, then dy/dx equals:	A. $98x + 126$ B. $14x$ C. $14x + 18$ D. $14x + 81$
18	$f(x) = ax^2 - 3x - 5$, and $f'(2) = 9$, a is equal to	A. 2 B. 3 C. -2 D. 4
19	If c is a constant, then $d/dx(c) =$	A. 0 B. c C. cx D. 1
20	If $f(x) = x^{-100}$ the value of $f'(1)$ is:	A. 100 B. -100 C. 0 D. -101
21	The derivative of $1/x^m$ is:	A. x^{m+1}/m B. $m(x)^{m-1}$ C. $(m-1)x^{m-1}$ D. m/x^{m+1}
22	If $f(x) = x^5 + x^3 + x$ the value of $f'(1)$ is:	A. 0 B. 8 C. 5 D. 9
23	If $y = x^m$ then dy/dx equals:	A. mx B. x/m C. mx^{m-1} D. mx^{m-1}
24	$d/dx(x^3 + 2x + 3) =$	A. $x^2 + 2$ B. $3x + 2$ C. $3x^2 + 2$ D. $3x^2 + 2$
25	If $y = 1/x^2$ then dy/dx equals:	A. $-2x$ B. x^{-3} C. $-2/x^3$ D. $-2x^3$
26	if $y = x^2$ then dy/dx equals:	A. $2x$ B. $x/2$ C. $2x^3$ D. $x^3/2$
27	If $f(x) = c$ then $f'(x)$ equals:	A. 1 B. 0 C. cx D. c
28	If $y = x^n$ then dy/dx equals:	A. nx B. x^{n-1} C. nx^{n-1} D. n
29	if $x \in D_f$ and $f'(x)$ exists, then f is said to be	A. zero at x B. Differentiable at x C. Continuous at x D. None of these
30	Let f be real valued function continuous in the interval $(x_1, x_2) \subseteq D_f$ (the domain of f), then $f(x_2) - f(x_1)/(x_2 - x_1)$ represents:	A. Instantaneous rate B. Average rate of change C. Differential coefficient D. None of these