

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

Sr	Questions	Answers Choice
1	Question Image	D. None of these
2	Question Image	
3	Question Image	A. zero at x B. differentiable at x C. continuous at x D. none of these
4	Question Image	
5	Question Image	B. x^{n-1}
6	Question Image	A. 1 B. 0 C. cx D. c
7	Question Image	A. $2x$ B. $x/2$ C. $2x^3$ D. $x^3/2$
8	Question Image	A. $-2x$ B. $x^3 - 3$ D. $-2x^3/2$
9	Question Image	
10	Question Image	A. 8 B. 1/8 C. 1/3 D. 2/3
11	Question Image	A. $x^2 + 2$ B. $3x + 2$ C. $3x^2 + 5$ D. $3x^2 + 2$
12	Question Image	A. mx B. x/m C. mx^{m-1} D. x^{m-1}
13	Question Image	A. 0 B. 8 C. 5 D. 9
14	Question Image	
15	Question Image	
16	Question Image	
17	Question Image	
18	Question Image	
19	Question Image	A. 100 B. -100 C. 0 D. -101
20	Question Image	
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31	Let f be real valued function continuous in the interval $(x, x_1) \subseteq D_f$ (the domain of f), then $f(x_1) - f(x)/x_1 - x$ represents:	<p>A. Instantaneous rate B. Average rate of change C. Differential coefficient D. None of these</p>
32	if $x \in D_f$ and $f'(x)$ exists, then f is said to be	<p>A. zero at x B. Differentiable at x C. Continuous at x D. None of these</p>
33	If $y = x^n$ then dy/dx equals:	<p>A. nx B. x^{n-1} C. nx^{n-1} D. n</p>
34	If $f(x) = c$ then $f'(x)$ equals:	<p>A. 1 B. 0 C. cx D. c</p>
35	if $y=x^2$ then dy/dx equals:	<p>A. $2x$ B. $x/2$ C. $2x^{3/2}$ D. $x^{3/2}/2$</p>
36	If $y = 1/x^2$ then dy/dx equals:	<p>A. $-2x$ B. x^{-3} C. $-2/x^{3/2}$ D. $-2x^{3/2}$</p>
37	$d/dx(x^3 + 2x + 3) =$	<p>A. $x^2 + 2$ B. $3x + 2$ C. $3x^2 + 5$ D. $3x^2 + 2$</p>
38	If $y=x^m$ then dy/dx equals:	<p>A. mx B. x/m C. mx^{m-1} D. x^{m-1}</p>
39	If $f(x) = x^5 + x^3 + x$ the value of $f'(1)$ is:	<p>A. 0 B. 8 C. 5 D. 9</p>
40	The derivative of $1/x^m$ is:	<p>A. x^{m+1}/m B. $m(x)^{m-1}$ C. $(m-1)x^{m-1}$ D. m/x^{m+1}</p>
41	If $f(x) = x^{100}$ the value of $f'(1)$ is:	<p>A. 100 B. -100 C. 0 D. -101</p>
42	If c is a constant, then $d/dx(c) =$	<p>A. 0 B. c C. cx D. 1</p>
43	$f(x) = ax^2 - 3x - 5$, and $f'(2) = 9$, a is equal to	<p>A. 2 B. 3 C. -2 D. 4</p>
44	If $y = (7x + 9)^2$, then dy/dx equals:	<p>A. $98x + 126$ B. $14x$ C. $14x + 18$ D. $14x + 81$</p>
45	If $2x + Ax + 7 = 0$, then $dx/dy =$	<p>A. $-1/2$ B. $-4/3$</p>

- 45 If $5x + 4y + t = 0$, then $dy/dx =$
 C. $7/2$
 D. $-3/4$
- 46 If $x^2 + y^2 = 1$, then $dy/dx =$
 A. y/x
 B. $-x/y$
 C. $1/x$
 D. None of these
- 47 If $x = at^2$ and $y = 2at$ then $dy/dx =$
 A. $2a/y$
 B. $y/2a$
 C. $-a/2y$
 D. $-2y/a$
- 48 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. $3/1-t$
- 49 If $f(x) = 2x^3 + 1$ then $f^{-1}(0) =$
 A. 0
 B. 1
 C. 6
 D. None of these
- 50 The derivative of \sqrt{x} at $x = a$ is:
 A. $1/2a$
 B. $2/\sqrt{a}$
 C. $2\sqrt{x}$
 D. $1/2\sqrt{x}$
- 51 If $f(x) = x^{2/3}$ then $f^{-1}(x)$ at $x = 8$ equals:
 A. 8
 B. $1/8$
 C. $1/3$
 D. $2/3$
- 52 If $f(x) = c$ then $f^{-1}(x)$ equals:
 A. 1
 B. 0
 C. cx
 D. c
- 53 If $f(x) = 1/x - 2$ then $f^{-1}(0)$ equals:
 A. $-1/4$
 B. $-3/2$
 C. $-1/2$
 D. $1/5$
- 54 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. $-\sin^2 x \tan x$
- 55 $d/dx [\tan^2 x]$
 A. $2\tan x \sec^2 x$
 B. $2\tan x \sec x$
 C. $2 \cot x \tan x$
 D. $2\sec^2 x \cos x$
- 56 $d/dx (\cos x^2) =$
 A. $-2x \cos x$
 B. $-2x \sin x^2$
 C. $-2x \tan x$
 D. $-2x \sec^2 x$
- 57 $d/dx (\cot x) =$
 A. $\sec x \tan x$
 B. $-\csc^2 x$
 C. $\sec^2 x$
 D. $1/\cot^2 x$
- 58 $d/dx (\operatorname{cosec} x)$
 A. $-\sec x \tan x$
 B. $\sin x \cos x$
 C. $-\csc x \cot x$
 D. $2\sin x \cos x$
- 59 $d/dx (\cos x \sin x) =$
 A. $\cos^2 x - \sin^2 x$
 B. $2\cos^2 x \sin x + \sin^2 x \cos x$
 C. $2\cos^2 x \sin x - \sin^2 x \cos x$
 D. $1 - \sin^2 x \cos x$
- 60 If $y = 3x + 2\cos x$, then $dy/dx =$
 A. $3-2 \sin x$
 B. $3-t \sin x$
 C. $3x^2 - 2\sin x$
 D. $3(1-4 \sin x)$
- 61 Question Image
 D. None of these
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- 63 Question Image
 A. zero at x
 B. differentiable at x

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- 92 if $x \in D_f$ and $f'(x)$ exists, then f is said to be
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B. Differentiable at x
C. Continuous at x
D. None of these
- 93 If $y = x^n$ then dy/dx equals:
A. nx
B. x^{n-1}
C. nx^{n-1}
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- 94 If $f(x) = c$ then $f'(x)$ equals:
A. 1
B. 0
C. cx
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- 95 if $y=x^2$ then dy/dx equals:
A. $2x$
B. $x/2$
C. $2x^3$
D. $x^3/2$
- 96 If $y = 1/x^2$ then dy/dx equals:
A. $-2x$
B. x^{-3}
C. $-2/x^3$
D. $-2x^{-3}$
- 97 $d/dx(x^3 + 2x + 3) =$
A. x^2
B. $3x^2$
C. $3x^2 + 2$
D. $3x^2 + 2$
- 98 If $y=x^m$ then dy/dx equals:
A. mx
B. x/m
C. mx^{m-1}
D. x^{m-1}
- 99 If $f(x) = x^5 + x^3 + x$ the value of $f'(1)$ is:
A. 0
B. 8
C. 5
D. 9
- 100 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}
- 101 If $f(x) = x^{100}$ the value of $f'(1)$ is:
A. 100
B. -100
C. 0
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- 102 If c is a constant, then $d/dx(c) =$
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D. 1
- 103 $f(x) = ax^2 - 3x - 5$, and $f'(2) = 9$, a is equal to
A. 2
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- 104 If $y = (7x + 9)^2$, then dy/dx equals:
A. $98x + 126$
B. $14x$
C. $14x + 18$
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- 105 If $3x + 4y + 7 = 0$, then $dy/dx =$
A. $-1/2$
B. $-4/3$
C. $7/2$
D. $-3/4$
- 106 If $x^2 + y^2 = 1$, then dy/dx
A. y/x
B. $-x/y$
C. $1/x$
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- 107 If $x = at^2$ and $y = 2at$ then $dy/dx =$
A. $2a/y$
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- 108 If $x = 1 - t^2$ and $y = 3t^2 - 2t^3$ then $dy/dx =$
A. $(1-t)$
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C. $3(t-1)$
D. $3/1-t$
- 109 If $f(x) = 2x^3 + 1$ then $f'(0) =$
A. 0
B. 1
C. 6
D. None of these

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- A. $1/2a$
B. $2/\sqrt{a}$
C. $2\sqrt{x}$
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111 If $f(x) = x^{2/3}$ then $f^{-1}(x)$ at $x = 8$ equals:

- A. 8
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D. $2/3$

112 If $f(x) = c$ then $f^{-1}(x)$ equals:

- A. 1
B. 0
C. cx
D. c

113 If $f(x) = 1/x - 2$ then $f^{-1}(0)$ equals:

- A. $-1/4$
B. $-3/2$
C. $-1/2$
D. $1/5$

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- A. $-\sin^2 x \sec x$
B. $-\cos x \sin^2 x$
C. $-\cos^2 x \tan x$
D. $-\sin^2 x \tan x$

115 $d/dx [\tan^2 x]$

- A. $2\tan x \sec^2 x$
B. $2\tan x \sec x$
C. $2 \cot x \tan x$
D. $2\sec^2 x \cos x$

116 $d/dx (\cos x^2) =$

- A. $-2x \cos x$
B. $-2x \sin x^2$
C. $-2x \tan x$
D. $-2x \sec^2 x$

117 $d/dx (\cot x) =$

- A. $\sec x \tan x$
B. $-\csc^2 x$
C. $\sec^2 x$
D. $1/\cot^2 x$

118 $d/dx (\operatorname{cosec} x)$

- A. $-\sec x \tan x$
B. $\sin x \cos x$
C. $-\csc x \cot x$
D. $2\sin x \cos x$

119 $d/dx (\cos x \sin x) =$

- A. $\cos^2 x - \sin^2 x$
B. $2\cos^2 x + \sin^2 x$
C. $2\cos^2 x - \sin^2 x$
D. $1 - \sin^2 x$

120 If $y = 3x + 2\cos x$, then $dy/dx =$

- A. $3-2 \sin x$
B. $3-t \sin x$
C. $3x^2 - 2\sin x$
D. $3(1-4 \sin x)$