Parishram (2025)

Physics

Basic Mathematics

DPP: 7

Q1 Given function, find the Critical point of the function $y = (x-2)^2$

(A) 1 (B) 4

(C) 2 (D) 5

Q2 Find the maxima of the function $(x-1)(x-2)^2$.

(A) 2 (B) 1

(C) $4/3$ (D) $3/4$

Q3 Slope of given curve at $x = 2, y = x^2 - 2x + 1$.

(A) 2 (B) 4

(C) 5 (D) 3

Q4 Maximum value of function $y = x^3 - 5x^2 + 2$.

(A) 5 (B) -5

(C) 2 (D) 4

Q5 The value of the function $(x-1)(x-2)^2$ at its maxima is

(A) 1

(B) 2

(C) 0

(D) $\frac{4}{27}$

Q6 If $x + y = 10$, then the maximum value of xy is

(A) 5 (B) 20

(C) 25 (D) None of these

Q7 If $y = 4x^2 - 2x + 4$, then find value of y when $\frac{dy}{dx} = 0$.

Q8 Find minimum values of the functions:

$y = 25x^2 + 5 - 10x$

Q9 Find maximum values of the functions

$y = 9 - (x-3)^2$

Q10 If $y = x^2 - 10x$. Find the minimum value of y.

(A) -8 (B) 16

(C) 14 (D) -25

Answer Key

Q1	(C)	Q6	(C)
Q2	(C)	Q7	15/4
Q3	(A)	Q8	4
Q4	(C)	Q9	9
Q5	(D)	Q10	(D)

Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Video Solution:

Q2 Video Solution:

Q3 Video Solution:

Q4 Video Solution:

Q5 Text Solution:

Given;

$f(x)=(x-1)(x-2)^2$

$f(x)=(x-1)\left(x^2+4-4x\right), f(x)$

$=\left(x^3-5x^2+8x-4\right)$

Now $f(x)=3x^2-10x+8,\ f'(x)=0$

$\Rightarrow 3x^2-10x+8=0 \Rightarrow (3x-4)(x-2)$

$=0 \Rightarrow \frac{4}{3}, 2$

now, $f(x)=6x-10$

$f\left(\frac{4}{3}\right)=6\times\frac{4}{3}-10<0$

$f(2)=12-10>0$

hence at $x=\frac{4}{3}$ the function will occupy maximum value maximum value $f\left(\frac{4}{3}\right)=\frac{4}{27}$

Video Solution:

Q6 Video Solution:

Q7 Video Solution:

Q8 Video Solution:

Q9 Video Solution:

Q10 Video Solution: