

# 1-1.9-22

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## VECTOR ARITHMETIC(CBSE)

Question(1.9.22)Find the value of  $y$  for which the distance between the points  $\mathbf{P}$   $(2, -3)$  and  $\mathbf{Q}$   $(10, y)$  is 10 units.

**Solution:**

Parameter	Description
$P$	$\begin{pmatrix} 2 \\ -3 \end{pmatrix}$
$Q$	$\begin{pmatrix} 10 \\ y \end{pmatrix}$
$D$	$Q - P$

TABLE 0: Parameters Used

$$\Rightarrow DD^T = 10^2 \quad (0.1)$$

$$= \begin{pmatrix} 8 & y+3 \end{pmatrix} \begin{pmatrix} 8 \\ y+3 \end{pmatrix} \quad (0.2)$$

$$100 = 73 + y^2 + 6y \quad (0.3)$$

$$\therefore y = 3, -9 \quad (0.4)$$

$$(0.5)$$

