

Mathematics

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(Chapter – 6) (Lines and Angles)(Exemplar Problems)

(Class – IX)

Exercise 6.3

Question 10:

Two lines are respectively perpendicular to two parallel lines. Show that they are parallel to each other.

Answer 10:

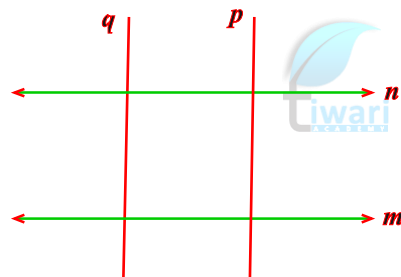
Given:

Two lines m and n are parallel and another two lines p and q are respectively perpendicular to m and n .

Or $p \perp m$ and $p \perp n$, $q \perp m$ and $q \perp n$

To prove:

$p \parallel q$



Proof:

Since, $m \parallel n$ and p is perpendicular to m and n .

So,

p is perpendicular to m ... (i)

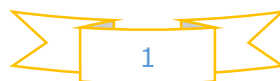
p is perpendicular to n ... (ii)

Since, $m \parallel n$ and q is perpendicular to m and n .

So,

q is perpendicular to m ... (iii)

q is perpendicular to n ... (iv)



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From the equations (i) and (iii) [or from (ii) and (iv)], we get

$$p \parallel q.$$

[If two lines are perpendicular to the same line, lines are parallel to each other]

Hence, $p \parallel q$.

