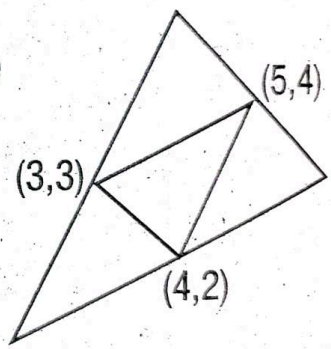
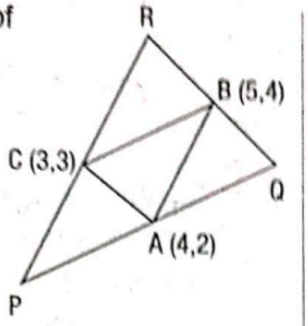
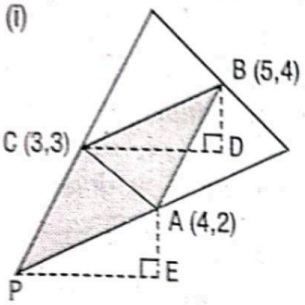
In this picture, the midpoints of the sides of the large triangle are joined to make a small triangle inside.
Calculate the coordinates of the vertices of the large triangle.



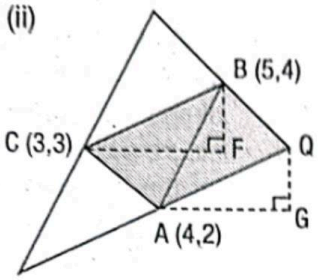
The line joining the midpoints of two sides of a triangle is parallel to the third side and half of it. (Class 9, Chapter 6, Parallel Lines.) So three parallelograms are formed in this figure as shown below.



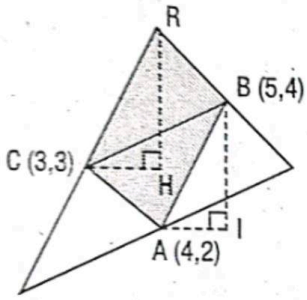
(i)



(ii)



(iii)



Now we can find the fourth vertex of the parallelogram as we have done in previous questions.

From fig (i), $CD = 5 - 3 = 2$

$BD = 4 - 3 = 1$

$\therefore PE = 2, AE = 1$

Coordinates of $P = (4 - 2, 2 - 1) = (2, 1)$

From fig (ii), $CF = 5 - 3 = 2$

$BF = 4 - 3 = 1$

$\therefore AG = 2, QG = 1$

Coordinates of $Q = (4 + 2, 2 + 1) = (6, 3)$

From fig (iii), $AI = 5 - 4 = 1$

$BI = 4 - 2 = 2$, $CH = 1, RH = 2$

Coordinates of $R = (3 + 1, 3 + 2) = (4, 5)$