Determine the two points of trisection p1(x_1,y_1) and p2(x_2,y_2) of the line segment joining A(3,-1) and B(9,7)

Solution:

$$X1 = Xa + \frac{1}{3}(Xb - Xa) = 3 + \frac{1}{3}(9 - 3) = 5$$

$$Y1 = Ya + \frac{1}{3}(Yb - Ya) = -1 + \frac{1}{3}\big(7 - (-1)\big) = 1\frac{2}{3}$$

$$X2 = Xa + \frac{2}{3}(Xb - Xa) = 3 + \frac{2}{3}(9 - 3) = 7$$

$$Y2 = Ya + \frac{2}{3}(Yb - Ya) = -1 + \frac{2}{3}\big(7 - (-1)\big) = 4\frac{1}{3}$$

Answer:

$$p1\left(5\,,1\frac{1}{3}\right);p2\left(7\,,4\frac{1}{3}\right)$$