Coordinate-Geomentry

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10^{th} Maths - Chapter 7

This is Problem-8 from Exercise 7.2

1. if A and B are (-2,-2) and (2,-4),respectively,find the coordinates of P such that AP=$\frac{3}{7}$ ABand P lies on the segment AB

Solution:
AP=$\frac{3}{7}AB, PB = \frac{4}{7}AB$
AP:PB=$\frac{3}{7}AB : \frac{4}{7}AB$=3:4
A=(-2,-2),B=(2,-4),m_1:m_2=3:4
using section formula,

x(P)=$\frac{m_1x_2+m_2x_1}{m_1+m_2}$
=$\frac{(3)(2)+(4)(-2)}{3+4}$
=$\frac{(6)+(-8)}{7}$
=$\frac{6-8}{7}$
$x(P) = \frac{-2}{7}$
$y(P) = \frac{m_1y_2+m_2y_1}{m_1+m_2}$
$= \frac{(3)(-4)+(4)(-2)}{3+4}$
$= \frac{-12+(-8)}{7}$
$= \frac{-12-8}{7}$
$y(P) = \frac{-20}{7}$