coordinate geometry

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10^{th} Maths - Chapter 7

This is Problem from- 4 from Exercise 7.3

1. Find the area of the quadrilateral whose vertices, taken in order, are (-4, -2), (-3, -5), (3, -2) and (2, 3).

   Solution:
   Join AC and divide the quadrilateral into two triangles.
   We have two triangles, ABC and ACD.
   Now
   Area of ABC = 1/2 × [x1(y2 – y3) + x2(y3 – y1) + x3(y1 – y2)]

   1/2 [(-4) (-5) – (-2) + (-3) (-2) – (-2) + 3 (-2) – (-5)]

   = 1/2 (12 + 0 + 9)

   = 21/2 square units

   Area of ACD = 1/2 [(-4) (-2) – (3) + 3(3) – (-2) + 2 (-2) – (-2)]

   = 1/2 (20 + 15 + 0)

   = 35/2 square units

   here, Area of quadrilateral ABCD = Area of ABC + Area of ACD

   = (21/2 + 35/2) square units

   = 28 square units.