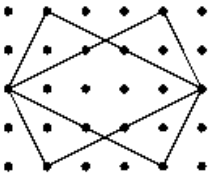
Question

Question ID: 881

11. The distance between two neighbouring dots in the dot lattice is 1 unit. What, in square units, is the area of the region where the two rectangles overlap?

A 6 B $6\frac{1}{4}$ C $6\frac{1}{2}$ D 7 E $7\frac{1}{2}$



Answer

11. B Let the six points where lines meet on the dot lattice be A, B, C, D, E, F as shown and let the other two points of intersection be P (where AC and BF meet) and Q (where CE and DF meet).
Triangles APB and CPF are similar with base lengths in the ratio 3:5. Hence triangle CPF has height $\frac{5}{8} \times 2 = \frac{5}{4}$ units and base length 5 units so that its area is $\frac{1}{2} \times \frac{5}{4} \times 5$ square units. Since the same is true of triangle CQF, the required area is $\frac{5}{4} \times 5 = 6\frac{1}{4}$ square units.