

1. **Problem**

What is the distance between the two points  $p = (3, 4)$  and  $q = (5, 2)$  in a Cartesian coordinate system?

**Solution**

The distance  $d$  of  $p$  and  $q$  is given by  $d^2 = (p_1 - q_1)^2 + (p_2 - q_2)^2$  (Pythagorean formula).

Hence  $d = \sqrt{(p_1 - q_1)^2 + (p_2 - q_2)^2} = \sqrt{(3 - 5)^2 + (4 - 2)^2} = 2.828$ .

