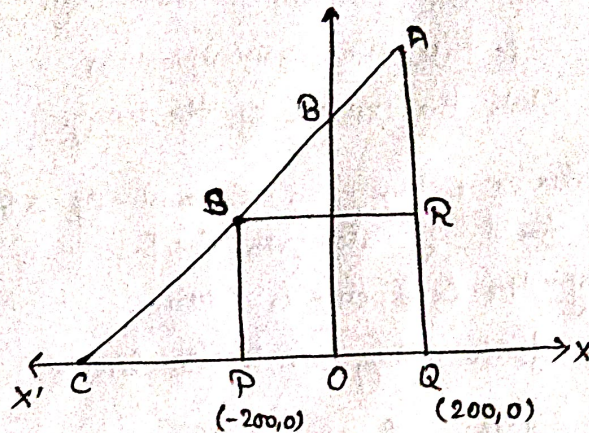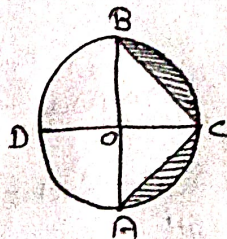Q) Jagdish has a field which is in the shape of a right angled triangle AQC. He wants to leave a space in the form of a square PQRS inside the field for growing wheat and the remaining for growing vegetables (as shown in the fig.). In the field, there is a Pole marked as O.

Based on the above information, answer the following Questions:

(i) Taking O as origin, coordinates of P are (-200,0) and of Q are (200,0). PQRS being a square, what are the coordinates of R and S. (1)

(ii) (a) what is the area of square PQRS? (2)
       or
    (b) what is the length of diagonal PR in square PQRS? (2)

(iii) If S divides CA in the ratio k:1, what is the value of k, where Point A is (200,800)? (1)

Q) In the given fig., AB and CD are diameters of a circle with center O Perpendicular to each other. If OA=7cm, Find the area of Shaded region. (3)

Q) Two Tangents TP and TQ are drawn to a circle with center O from an external Point T. Prove that ∠PTQ = 2∠OPQ (5)