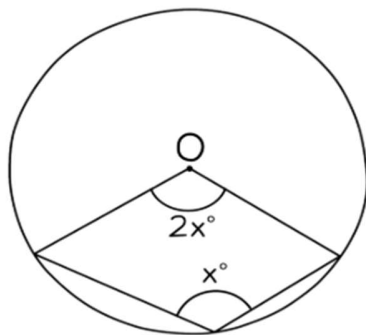
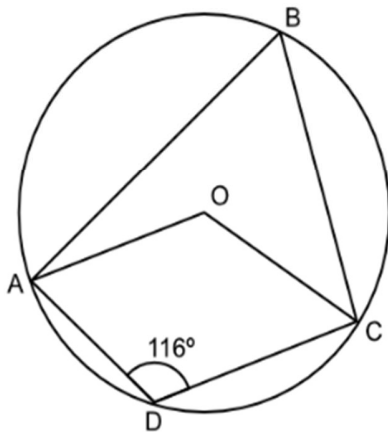
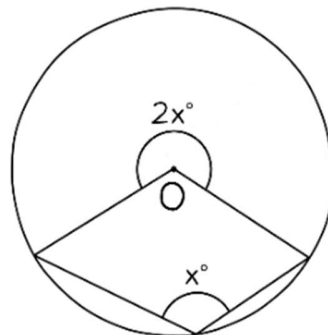


1. a. Illustrate the following inequality on a number line (a). $-5 < x \leq 3$ (b). $3 \leq x \leq 5$ (c). $-4 \leq a \leq -2$
b. solve the following inequalities (i) $8 \leq 2x \leq x + 10$ (ii). $a \leq 4a + 2 < 6a + 8$ (iii). $2(x - 1) < 3(x - 2) < 2(x - 4)$ (iv). $4 < 3x - 2 \leq 2x + 9$
2. a. prove the following theorems (i). the angle which an arc subtends at the centre is twice the angle at the circumference (ii). the opposite angles of a cyclic quadrilateral are supplementary i.e add up to 180
b. (i).

ABCD is a cyclic quadrilateral. O is the centre of the circle. The angle $\angle ADC$ is 116° : what is the value of the angle $\angle AOC$?



(ii).



(iii).

find the value of x in the diagram above

3. a. define the following concept (i). probability (ii). sample space (iii). An event (iv). Outcomes (v). experiments
b. a bag contains 8 red balls, 4 black balls and 9 white balls. Find the probability of (i). picking a red ball (ii). a white ball (iii). Not picking a black
c. a die is rolled 200 times. The outcome obtained are shown in the table below

number	1	2	3	4	5	6
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No of times	25	30	45	28	40	32
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(i). find the probability of obtaining a 2 (ii). what is the probability of obtaining a number less than 3

4. A coin is tossed twice. Given that at least one of the tosses resulted in heads, what is the probability that both tosses resulted in heads? Explain the steps you took to arrive at your answer.

5. i. A circle has an angle at the center of 80° . What is the measure of the angle subtended by the same arc at any point on the circumference of the circle?

ii. A circle has a radius of 10 cm, and an angle of 60° is subtended at the center. What is the length of the arc corresponding to this angle?

iii. For a circle with a radius of 12 cm, calculate the area of the sector formed by an angle of 90° .

iv. If **AB** is the diameter of a circle and **C** is any point on the circumference, what is the measure of angle **ACB**?