3055 BA SANGAM COLLEGE

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WORKSHEET 18

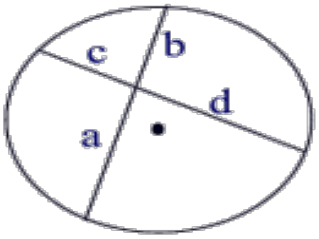
SCHOOL: BA SANGAM COLLEGE **YEAR: 10**

SUBJECT: MATHEMATICS **NAMEOF STUDENT: _____**

STRAND	**4- GEOMETRY**
SUB-STRAND	**4.5 Intersecting Chord Theorem**
LEARNING OUTCOME	• Identify different types and properties of intersecting chords. • Prove properties of intersecting chords

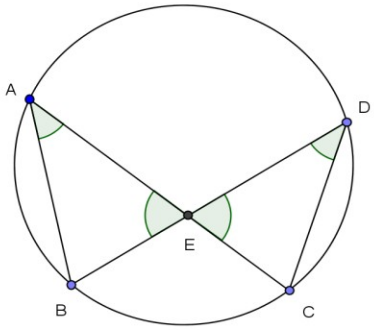
Two Chords Intersect in a Circle

If two chords intersect inside a circle then the product of the lengths of the segments of one chord equals the product of the lengths of the segments of the other chord



$a \bullet b = c \bullet d$

Theorem Proof:



Given chords AB and CD, prove that

$AE \cdot EC = DE \cdot EB$

$\angle BAC = \angle BDC$ as inscribed angles subtended by the same chord BC

$\angle ABD = \angle ACD$ as inscribed angles subtended by the same chord AD$\angle$

AEB = $\angle$DEC as a pair of vertical angles

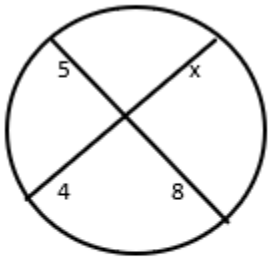
By Triangles with Two Equal Angles

are Similar we have $\triangle AEB \sim \triangle DEC$.

Thus:

Example Find *x* in each of the following

(a)

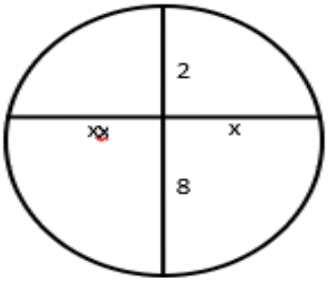


By Theorem 1, $4 \bullet x = 5 \bullet 8$

$4x = 40$

$x = 10$

(b)



By Theorem 1, $x \bullet x = 2 \bullet 10$

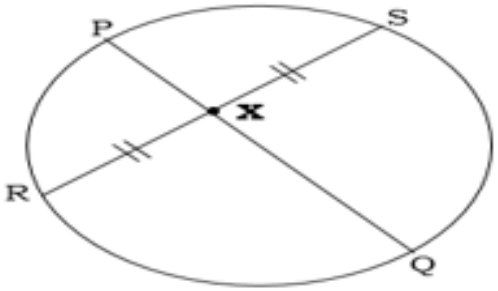
$x^2 = 20$

$x = \sqrt{20}$

$x = 4.47$

EXERCISE

The figure given below shows two chords intersecting inside a circle at **X**.



(a) Complete the relationship below.

$\overline{PX}$ x _____ = _____ x_____

(b) If $\overline{PX} = 2$ cm and $\overline{QX} = 8$ cm, find the length of $\overline{RX}$.

(3MARKS)

2. For the following, find the value of X