

FORM 3

MATHEMATICS

CIKGU SHUHADA

FORM 3 MATHEMATICS		
CHAPTER	TOPIC	REMARKS
1	INDICES	
2	STANDARD FORM	
3	CONSUMER MATHEMATICS: SAVINGS AND INVESTMENTS, CREDIT AND DEBT	
4	SCALE DRAWINGS	
5	TRIGONOMETRIC RATIOS	
6	ANGLES AND TANGENT OF CIRCLES	
7	PLANS AND ELEVATIONS	
8	LOCI IN TWO DIMENSIONS	
9	STRAIGHT LINES	

CHAPTER 8: LOCI IN TWO DIMENSIONS**8.1 LOCI**

1. Describe and sketch the locus of each of the following moving objects.

a) A basketball is thrown into the basket

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b) A ball is thrown from one person to another person

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c) A train moving on a straight railway track

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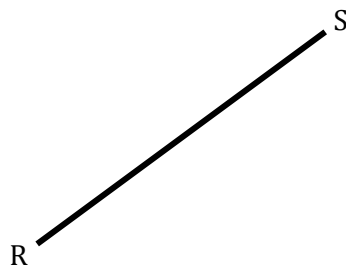
d) A point at the tyre of a moving motorcycle

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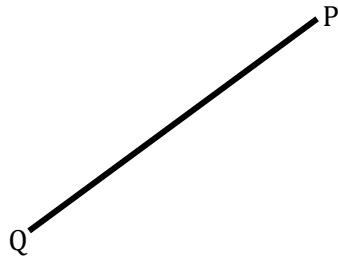
2. Construct each of the following loci.

a) A moving point A which is 2 cm from point X.

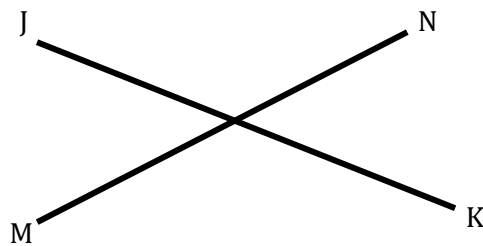
b) A moving point C which is 2 cm from straight line RS.



- c) A moving point B which is equidistant from point P and point Q.

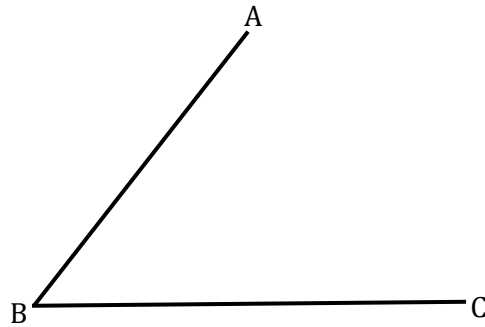


- d) A moving point D which is equidistant from two intersecting lines, JK and MN.



3. In each of the following, X is the moving point. Construct each of the following loci.

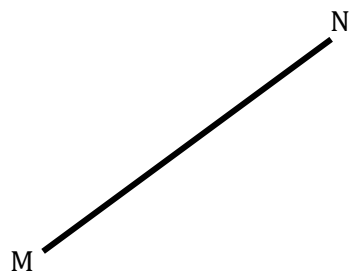
a) $\angle ABX = \angle XBC$



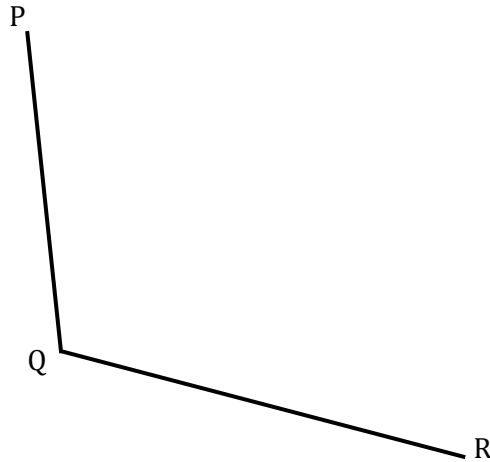
b) $KX = 1.5 \text{ cm}$



c) $MX = NX$



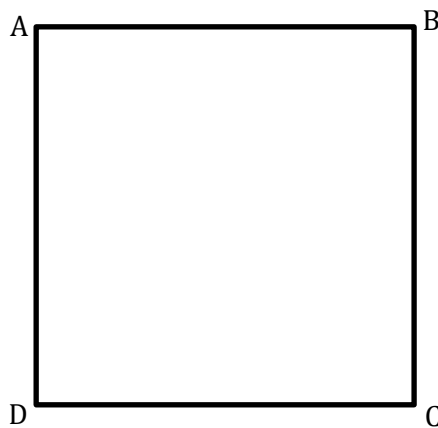
d) $\angle PQX = \angle RQX$



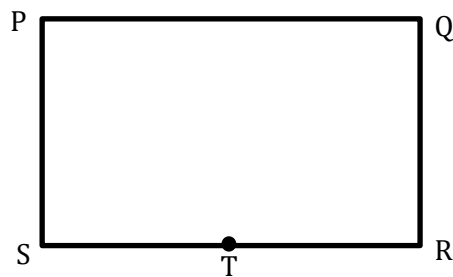
4. Solve each of the following problems

a) The following diagram shows a square with sides of 5 cm.

- i. Construct the locus of a moving point X which is 5 cm from the vertex B.
- ii. Construct the locus of a moving point Y such that $AY = DY$.
- iii. Mark the point of intersection of the two loci with symbol $\otimes$.



- b) The following diagram shows a rectangle, PQRS with a length of 5 cm and a width of 3 cm. T is the midpoint of SR. Construct the following loci
- W is a point which moves such that it is always 2.5 cm from T.
 - X is a moving point such that $PX = SX$.
 - Hence, mark with the symbol $\otimes$, the points of intersection between locus W and locus X.



c)

Rajah berikut menunjukkan sebuah segi empat sama, $ABCD$ yang dilukis pada grid segi empat sama bersisi 1 unit.

The following diagram shows a square $ABCD$, drawn on square grids with sides of 1 unit.

- (i) W ialah suatu titik yang bergerak dengan keadaan jaraknya sentiasa sama dari garis BA dan BC . Dengan menggunakan huruf abjad dalam rajah, nyatakan lokus bagi W .

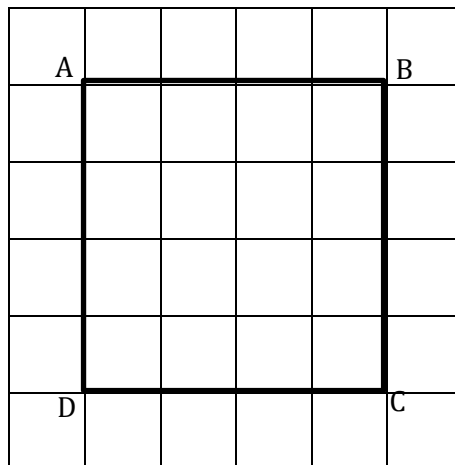
W is a point which moves such that it is always equidistant from the lines BA and BC . By using the letters in the diagram, state the locus of W .

- (ii) Lukis lokus bagi titik X yang bergerak dengan keadaan jaraknya sentiasa 3 unit dari titik A .
Draw the locus of point X which moves such that its distance is always 3 units from point A .

- (iii) Lukis lokus bagi titik Y yang bergerak dengan keadaan jaraknya sentiasa 1 unit dari garis AB .

Draw the locus of point Y which moves such that its distance is always 1 unit from line AB .

- (iv) Seterusnya, tandakan dengan simbol $\otimes$, titik persilangan di antara lokus X dan lokus Y .
Hence, mark with the symbol $\otimes$, the point of intersection between locus of X and locus of Y .



d)

Rajah berikut menunjukkan sebuah segi empat tepat $ABCD$ dengan pusat O . E , F , G dan H masing-masing ialah titik tengah bagi AB , BC , CD dan AD .

The following diagram shows a rectangle $ABCD$ with centre O . E , F , G and H are the midpoints of AB , BC , CD and AD respectively.

- (i) W ialah suatu titik yang bergerak dengan keadaan jaraknya adalah sentiasa sama dari garis AD dan BC . Dengan menggunakan huruf abjad pada rajah tersebut, nyatakan locus bagi W .

W is a point which moves such that it is always equidistant from line AD and line BC . By using the letters in the diagram, state the locus of W .

- (ii) Lukis locus bagi titik X yang bergerak dengan keadaan $OX = OE$.

Draw the locus of point X which moves such that $OX = OE$.

- (iii) Lukis locus bagi titik Y yang bergerak dengan keadaan jaraknya sentiasa sama dari titik B dan titik C .

Draw the locus of point Y which moves such that it is always equidistant from points B and C .

- (iv) Seterusnya, tandakan dengan simbol $\otimes$, titik persilangan di antara locus X dan locus Y .

Hence, mark with the symbol $\otimes$, the points of intersection between locus of X and locus of Y .

