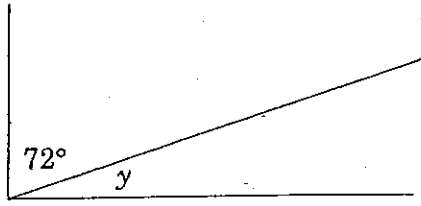


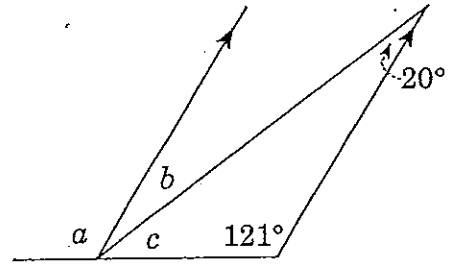
Geometry

Question 1 Find the value of each pronumeral in the following questions, stating the reasons:

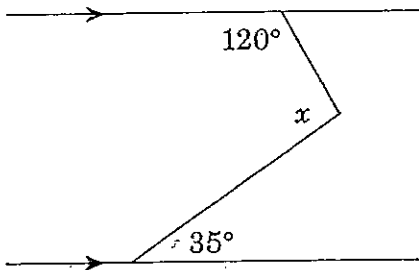
(a)



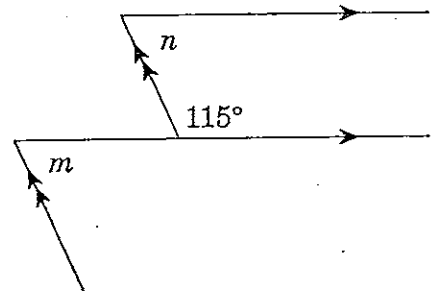
(b)



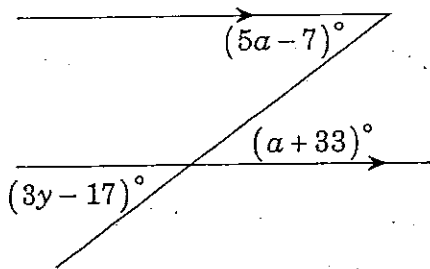
(c)



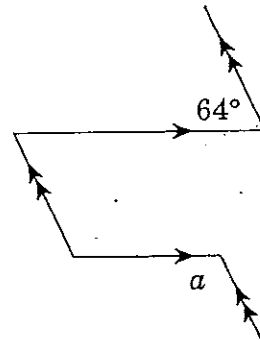
(d)

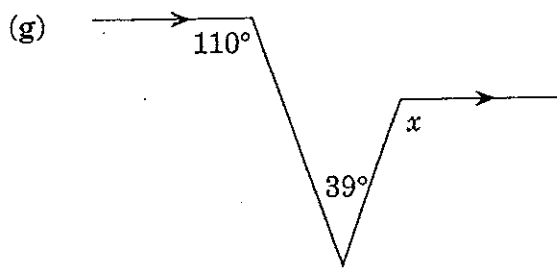


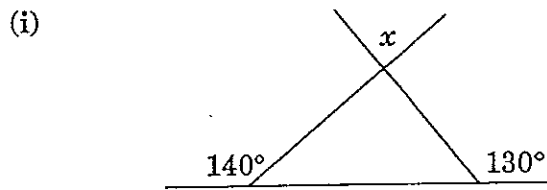
(e)

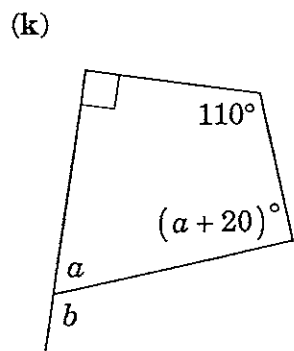


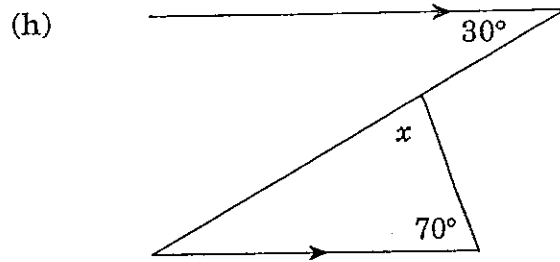
(f)

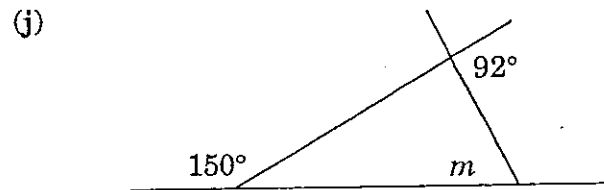


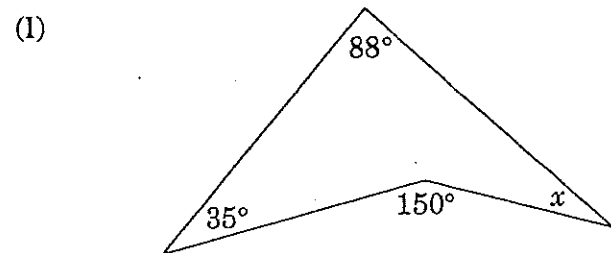




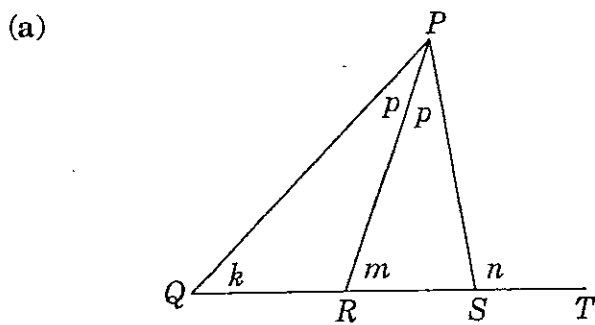




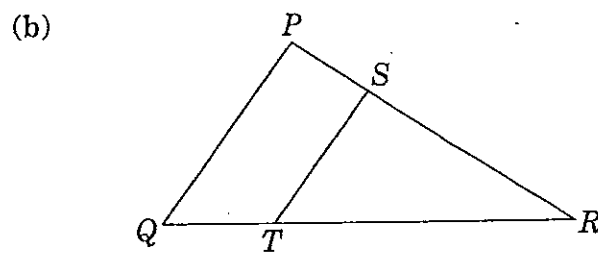




Question 2 Reasoning



Prove that $k + n = 2m$



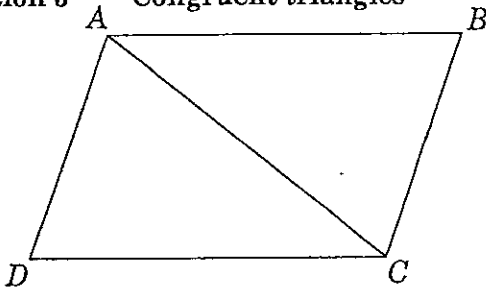
$\angle STQ = \angle PRQ + \angle QPR$

Prove that $PQ \parallel ST$

Question 3

Congruent triangles

(a)

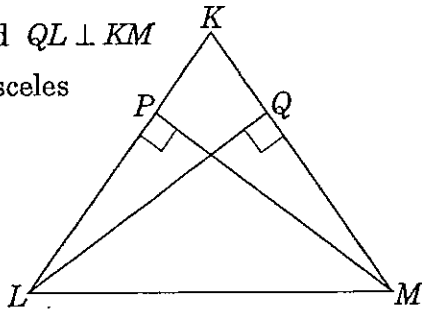


$ABCD$ is a parallelogram

Prove that $\triangle ABC \cong \triangle CDA$.

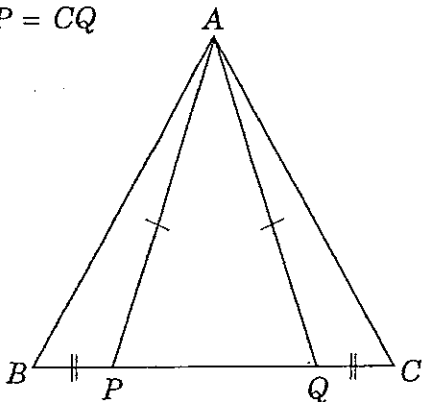
(c) $PM \perp KL$ and $QL \perp KM$
 $\triangle KLM$ is isosceles

Prove that
 $PM = QL$

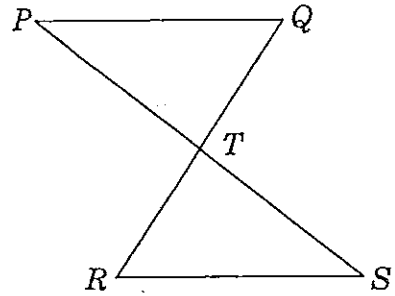


(e) $AP = AQ$, $BP = CQ$

Prove that
 $AB = AC$



(b)

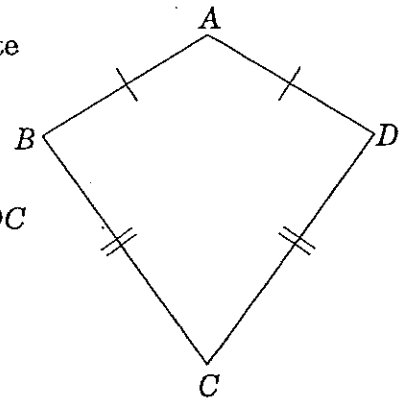


PS and QR bisect each other.

Prove that $PQ = RS$ and $PQ \parallel RS$

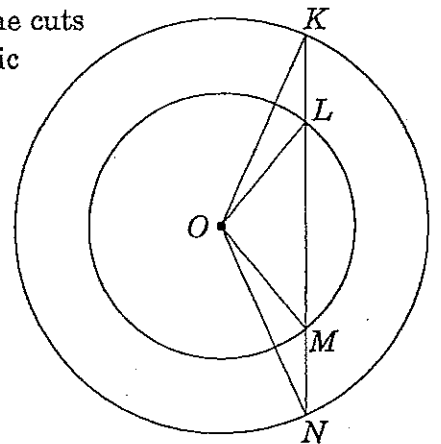
(d) $ABCD$ is a kite

Prove that
 $\angle ABC = \angle ADC$



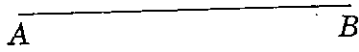
(f) A straight line cuts
two concentric
circles at
 K, L, M, N ,
as shown.

Prove that
 $KL = MN$

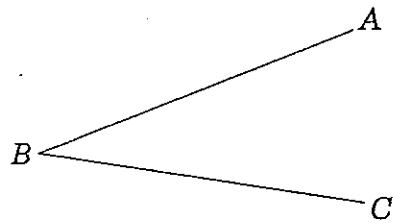


Question 4 Constructions using compass and ruler only

(a) Bisect interval AB

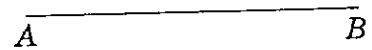
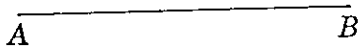


(b) Bisect $\angle ABC$



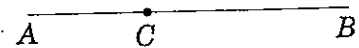
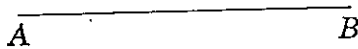
(c) Construct an angle of 60° on AB at A .

(d) Construct an angle of 30° on AB at A .



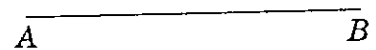
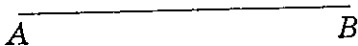
(e) Construct an angle of 90° on AB at A .

(f) Construct a perpendicular to AB at C .



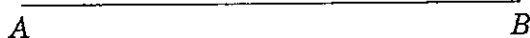
(g) Construct a perpendicular from C to AB .

(h) Construct a line through P parallel to AB .



▼▼▼
Question 5

- (a) Construct a square inside a circle of radius 2 cm.
- (b) Construct a regular hexagon inside a circle of radius 3 cm.
- (c) Construct a regular octagon inside a circle of diameter 4 cm.
- (d) Construct $\angle ABC$ if $AB = 5.3$ cm, $BC = 3.7$ cm, $AC = 4.1$ cm.
- (e) Construct a square of side 4 cm.
- (f) Construct a parallelogram with sides 5 cm and 3 cm, and acute angle of 60° .
- (g) Construct an angle of 120° .
- (h) Divide interval AB into 5 equal parts using compass and ruler only.



A B

25 Geometry

- 1 (a) $x = 18^\circ$, complementary angles
 - (b) $a = 121^\circ$, corresponding; $b = 20^\circ$, alternate;
 $c = 20^\circ$, angles in a Δ sum to 180°
 - (c) $x = 95^\circ$, cointerior to 120° and alternate to 35°
 - (d) $n = 65^\circ$, cointerior to 115° ;
 $m = 65^\circ$, corresponding to n
 - (e) $a = 10^\circ$, alternate; $y = 20^\circ$, vertically opposite
 - (f) $a = 116^\circ$, alt. / corres. / alt.
 - (g) $x = 109^\circ$, alt. / coint.
 - (h) $x = 80^\circ$, angles in a Δ sum to 180°
 - (i) $x = 90^\circ$, supp. / vert. opp.
 - (j) $m = 62^\circ$, supp. and ext. angle
 - (k) $a = 70^\circ$, \angle s in a quadrilateral sum to 360° ;
 $b = 110^\circ$, supplementary
 - (l) $x = 27^\circ$, \angle s in a quadrilateral sum to 360°
- 2 } A variety of proofs could
 - 3 } be applied with accuracy.
 - 4 Constructions.