

PROPERTIES OF QUADRILATERALS – WORKSHEET

COURSE/LEVEL

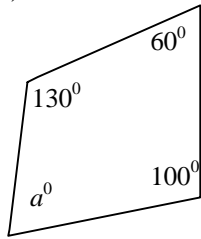
NSW Secondary High School Year 11 Preliminary Mathematics.

TOPIC

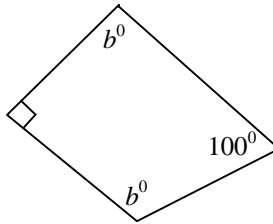
Plane Geometry: Properties of Quadrilaterals. (Syllabus Ref: 2.2)

1. Find the value of each pronumeral.

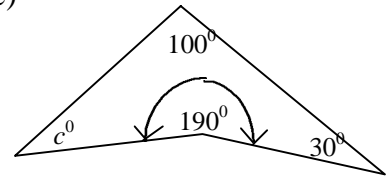
(a)



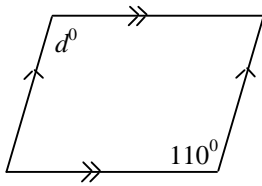
(b)



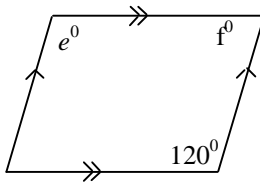
(c)



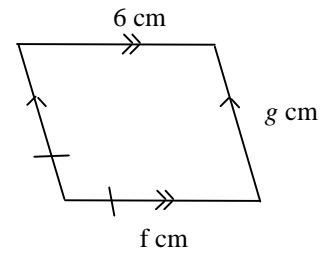
(d)



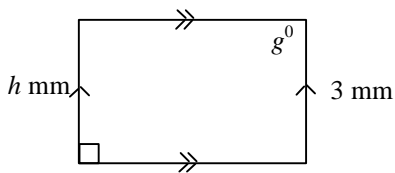
(e)



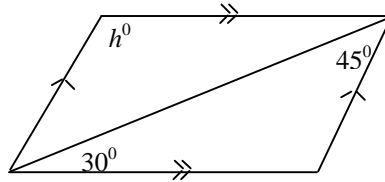
(f)



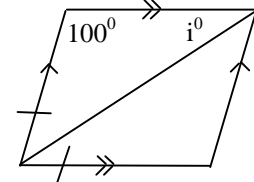
(g)



(h)

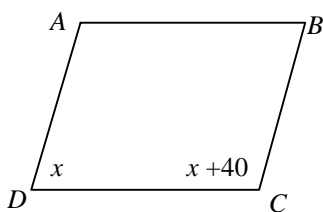


(i)

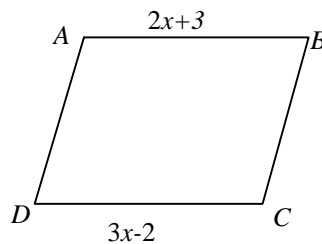


2. In each of the following, $ABCD$ is a parallelogram. Find x , giving reasons.

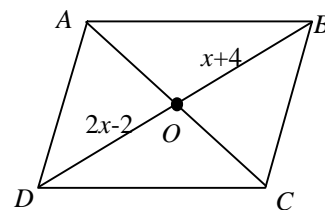
(a)



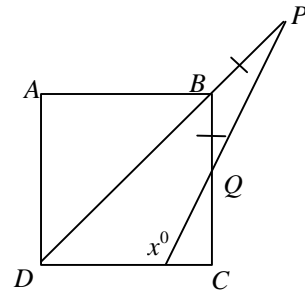
(b)



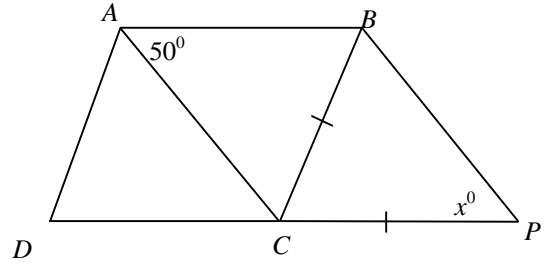
(c)



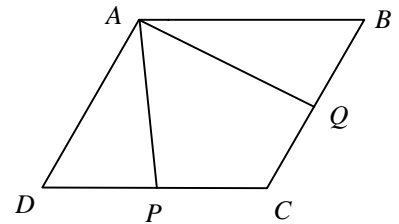
3. (a) $ABCD$ is a square and $BP = BQ$.
Find x , giving reasons.



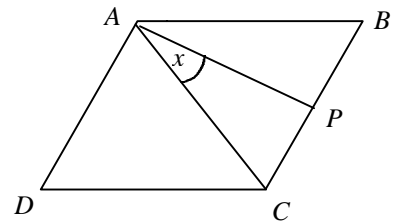
3. (b) $ABCD$ is a rhombus and $CP = BC$.
Find x , giving reasons.



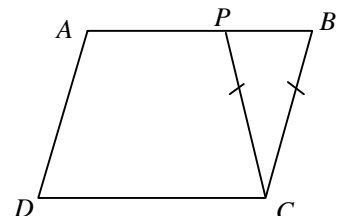
4. $ABCD$ is a rhombus. P and Q are midpoints of sides CD and BC respectively. Show that
- (i) $\triangle ADP \cong \triangle ABQ$
 - (ii) $AP = AQ$
 - (iii) $\angle APC = \angle AQC$



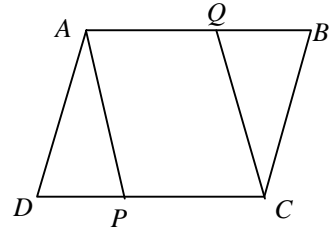
5. $ABCD$ is a rhombus. AP bisects $\angle CAB$. Let $x = \angle CAP$ and show that
- (i) $\angle BAD = 4x$
 - (ii) $\angle APB = 3x$



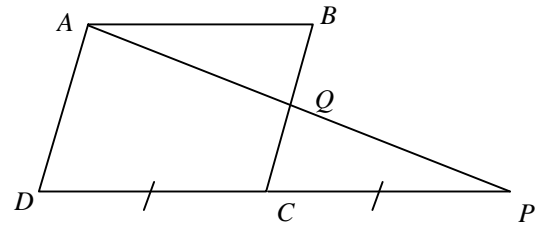
6. $ABCD$ is a parallelogram. $CP = BC$. Show that $\angle ADC = \angle PCD$.



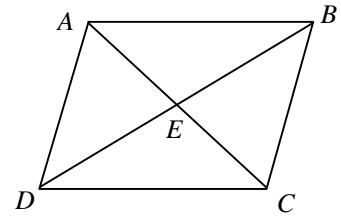
7. $ABCD$ and $AQCP$ are parallelograms. Show that $\triangle ADP \cong \triangle QBC$.



8. $ABCD$ is a parallelogram. DC is produced to P such that $CP = CD$. AP intersects BC at Q . Show that $CQ = BQ$.



9. $ABCD$ is a parallelogram. Diagonals AC and BD intersect at E .
- (i) Show that $\triangle AEB \cong \triangle DEC$
 - (ii) Hence show that $DE = BE$ and $AE = CE$.
 - (iii) Which property of parallelograms does this prove?



10. $ABCD$ is a rectangle. Diagonals AC and BD intersect at E .
- (i) Show that $\triangle ABC \cong \triangle ADB$.
 - (ii) Hence show that $AC = BD$.
 - (iii) Which property of rectangles does this prove?

