

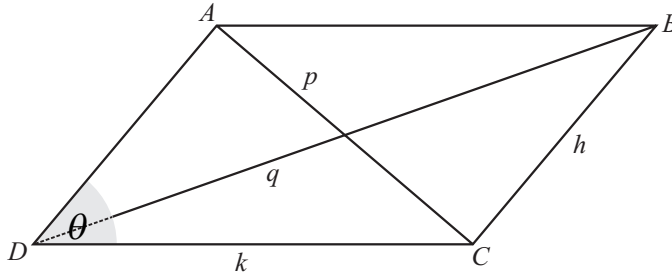
SAMPLE PAPER 4: PAPER 2

QUESTION 3 (25 MARKS)

Question 3 (a)

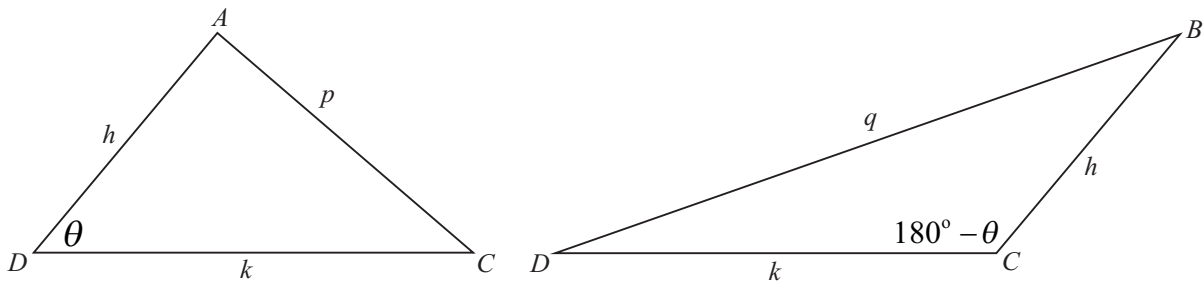
The adjacent interior angles in a parallelogram add up to 180° .

Question 3 (b)



$$\begin{aligned} \cos(180^\circ - \theta) &= \cos 180^\circ \cos \theta - \sin 180^\circ \sin \theta \\ &= (-1) \cos \theta - (0) \sin \theta \\ &= -\cos \theta \end{aligned}$$

Question 3 (c)



$$p^2 = h^2 + k^2 - 2kh \cos \theta \dots (1)$$

$$q^2 = h^2 + k^2 - 2kh \cos(180^\circ - \theta)$$

$$q^2 = h^2 + k^2 + 2kh \cos \theta \dots (2)$$

Add equations (1) and (2):

$$\therefore p^2 + q^2 = 2h^2 + 2k^2$$
