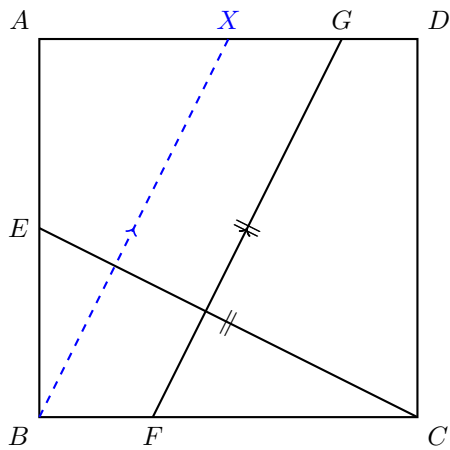


## Question 1



Draw  $BX$  such that  $BX \parallel GF$ .

$GX \parallel BF$

$\therefore BFGX$  is a parallelogram.

$BX = GF$

$= EC$

$AB = BC$

$\angle XAB = \angle EBC = 90^\circ$

$\therefore \triangle XAB \cong \triangle EBC$

$\angle BEC = \angle BXA$

$= \angle AGF$

$\angle BEC + \angle EBC + \angle BCE = 180^\circ$

$\angle AGF = 90^\circ - \angle BCE$

(prop. of ||gram)

(given)

(prop. of square)

(prop. of square)

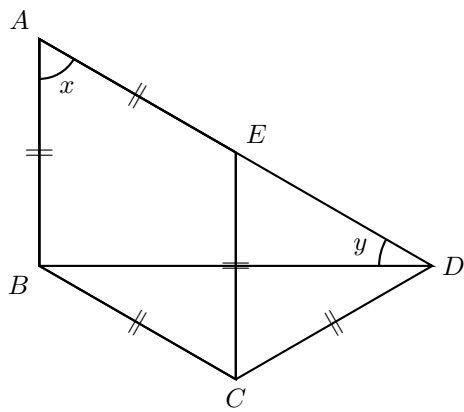
(RHS)

(corr.  $\angle$ s,  $\cong \triangle$ s)

(corr.  $\angle$ s,  $BX \parallel GF$ )

( $\angle$  sum of  $\triangle$ )

## Question 2



Let  $\angle BAD = x$ ,  $\angle ADB = y$ .

$$\begin{aligned} \angle CED &= \angle BAD = x && \text{(corr. } \angle\text{s, } AB \parallel CE) \\ \angle CBD &= \angle ADB = y && \text{(alt. } \angle\text{s, } AB \parallel CE) \end{aligned}$$

$$\begin{aligned} BC &= AE && \text{(prop. of rhombus)} \\ &= CD && \text{(given)} \\ \therefore \angle CDB &= \angle CBD = y && \text{(base } \angle\text{s, isos. } \triangle) \\ \angle CDE &= 2y \end{aligned}$$

$$\begin{aligned} CE &= AE && \text{(prop. of rhombus)} \\ &= CD && \text{(given)} \\ \therefore \angle CDE &= \angle CED && \text{(base } \angle\text{s, isos. } \triangle) \\ x &= 2y \\ \angle BAD &= 2\angle ADB \end{aligned}$$