(ii) $\angle 1 = \angle 2 = 60^\circ$ (each angle of equilateral $\triangle$ is 60°)

But these are alternate interior $\angle$s

$\therefore PB \parallel DE$

$PB = DE$ (each x units)

$\therefore \square BEDP$ is a $\parallel gm$

$ar(\triangle BDE) = ar(\triangle BDP)$ [diagonal divides a $\parallel gm$ into $\triangle$s equal in area]

(x2)

$2\,ar(\triangle BDE) = 2\,ar(\triangle BDP)$

$ar(\triangle BEC) = ar(\triangle ABD)$ [Median divides a $\triangle$ into 2 $\triangle$s equal in area]

$ar(\triangle BEC) = \frac{1}{2} ar(\triangle ABC)$ [do]

$\Rightarrow ar(\triangle ABC) = 2\,ar(\triangle BEC)$

(iii) $ar(\triangle BDE) = \frac{1}{2} ar(\triangle BEC)$ (do)

But $ar(\triangle BEC) = ar(\triangle ABE)$

$\therefore ar(\triangle BDE) = \frac{1}{2} ar(\triangle BAE)$

$\angle 3 = \angle 4 = 60^\circ$
But these are alternate interior $\angle$s
$BE \parallel AC$.
$\triangle$s on same base and between same $\parallel$ lines.