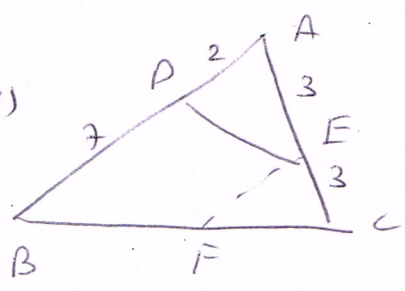


$\frac{6}{284}$



(S.S.S) $\angle A = \angle A$ (1)

(S.S.S) $\frac{AB}{AE} = \frac{AC}{AD}$

$\frac{9}{3} = \frac{6}{2} = 3$

$\Delta ABC \sim \Delta AED$

(S.S.S) $\angle C = \angle C$ (2)

(S.S.S) $\Delta ABC \sim \Delta FEC$

(S.S.S) $\frac{BC}{FC} = \frac{2FC}{FC} = 2$
 $\frac{AC}{EC} = \frac{6}{3} = 2$

$\angle FEC = \angle A$ (3)
 $\angle AED = \angle B$

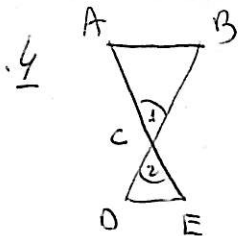
(S.S.S) $\angle AED + \angle DEF + \angle FEC = 180$

$\angle A + \angle DEF + \angle B = 180$

$\angle DEF = 180 - \angle A - \angle B$

(S.S.S) $\angle C = 180 - \angle A - \angle B$

$\angle DEF = \angle C$

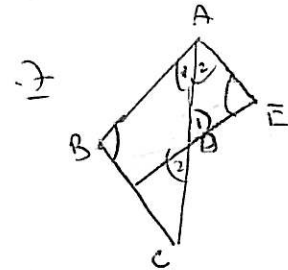


(111) $\frac{AC}{CE} = \frac{BC}{CD}$ (111) $\angle C_1 = \angle C_2$

(3.3.3) $\Delta ABC \sim \Delta EDC$

\Downarrow
 $\angle D = \angle B \Rightarrow AB \parallel DE$
 (111) (111) (111)

$\frac{AC}{CE} = \frac{6}{3} = \frac{AB}{DE} = \frac{5}{DE} \Rightarrow DE = 2\frac{1}{2}$



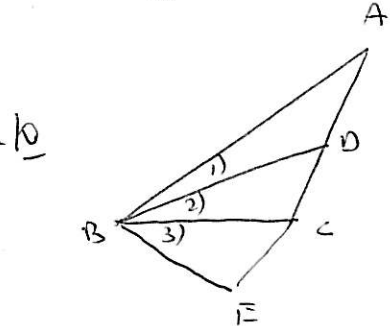
(3.3.3) $\Delta ABC \sim \Delta ADE \Rightarrow \angle B = \angle E$

(111) $\angle A_1 = \angle C$
 (111) $\angle D_1 = \angle D_2$
 \Downarrow
 $\angle D_2 = \angle C$

(111) $\frac{AB}{BC} = \frac{AD}{DC}$

(111) $DC = CE$

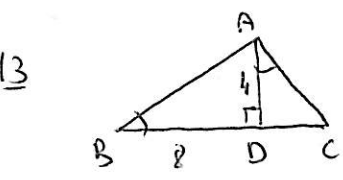
$\left. \begin{matrix} \frac{AB}{BC} = \frac{AD}{CE} \\ (111) \angle A = \angle B_1 \end{matrix} \right\} \Delta ABC \sim \Delta CBE \text{ (3.3.3)}$
 \Downarrow
 $\angle B_1 = \angle B_3$



(3.3) $\Delta ABD \sim \Delta ACD$

$\angle DAC = \angle B = \alpha \iff \angle B = \alpha$ (111)
 $\angle C = \angle BAD = 90 - \alpha$
 $\angle A = \angle BAD + \angle DAC = 90 - \alpha + \alpha = 90$

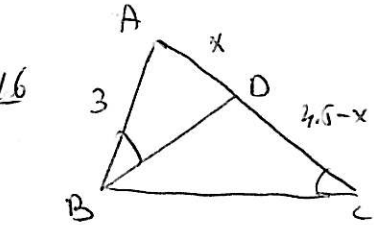
$\frac{BD}{AD} = \frac{AD}{DC} \rightarrow \frac{3}{4} = \frac{4}{DC} \Rightarrow DC = 2$



(3.3) $\Delta ABD \sim \Delta ACB$

$\frac{3}{4.5} = \frac{x}{3} \Rightarrow x = AD = 2$

$AD = x$ (111)



(3.3) $\Delta ADC \sim \Delta BEC \sim \Delta BHA$

$\iff \begin{matrix} \angle B_1 = 90 - \alpha, \angle C = \alpha \text{ (111)} \\ \angle H_1 = \alpha, \angle A_1 = 90 - \alpha \end{matrix}$
 $AE = DC = x$ (111)

$\frac{BC}{AC} = \frac{15}{10} = \frac{EC}{DC} = \frac{10-x}{x}$

$15x = 100 - 10x$
 $25x = 100 \Rightarrow x = DC = 4$ $EC = 10 - 4 = 6$