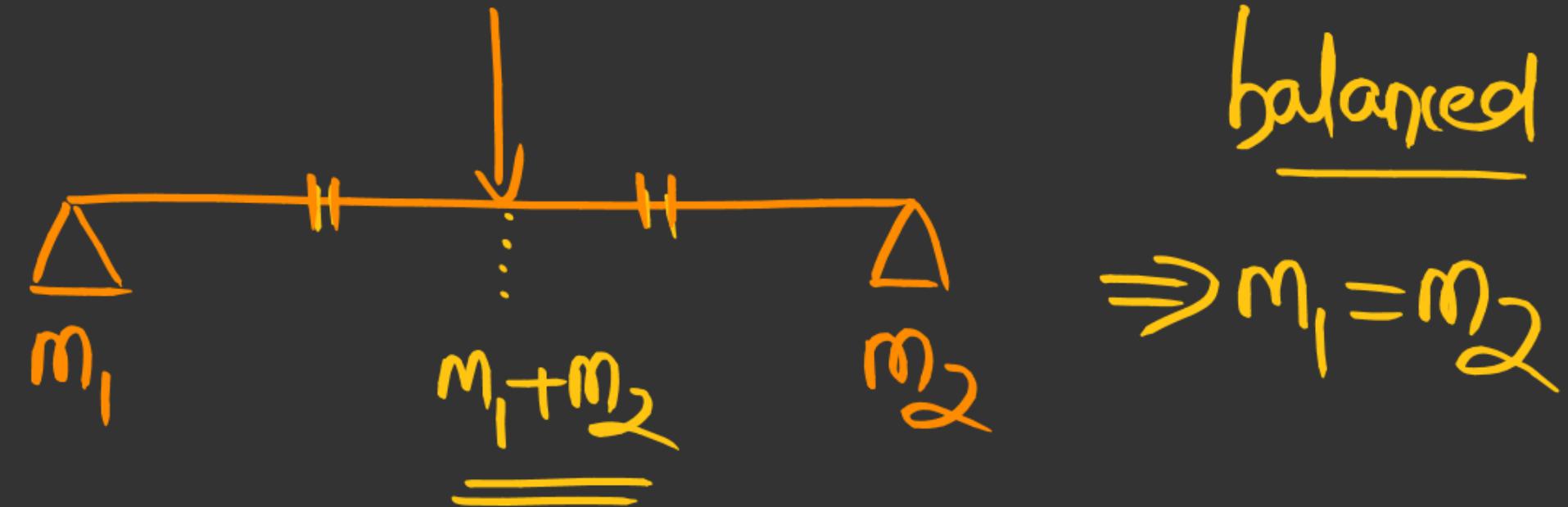


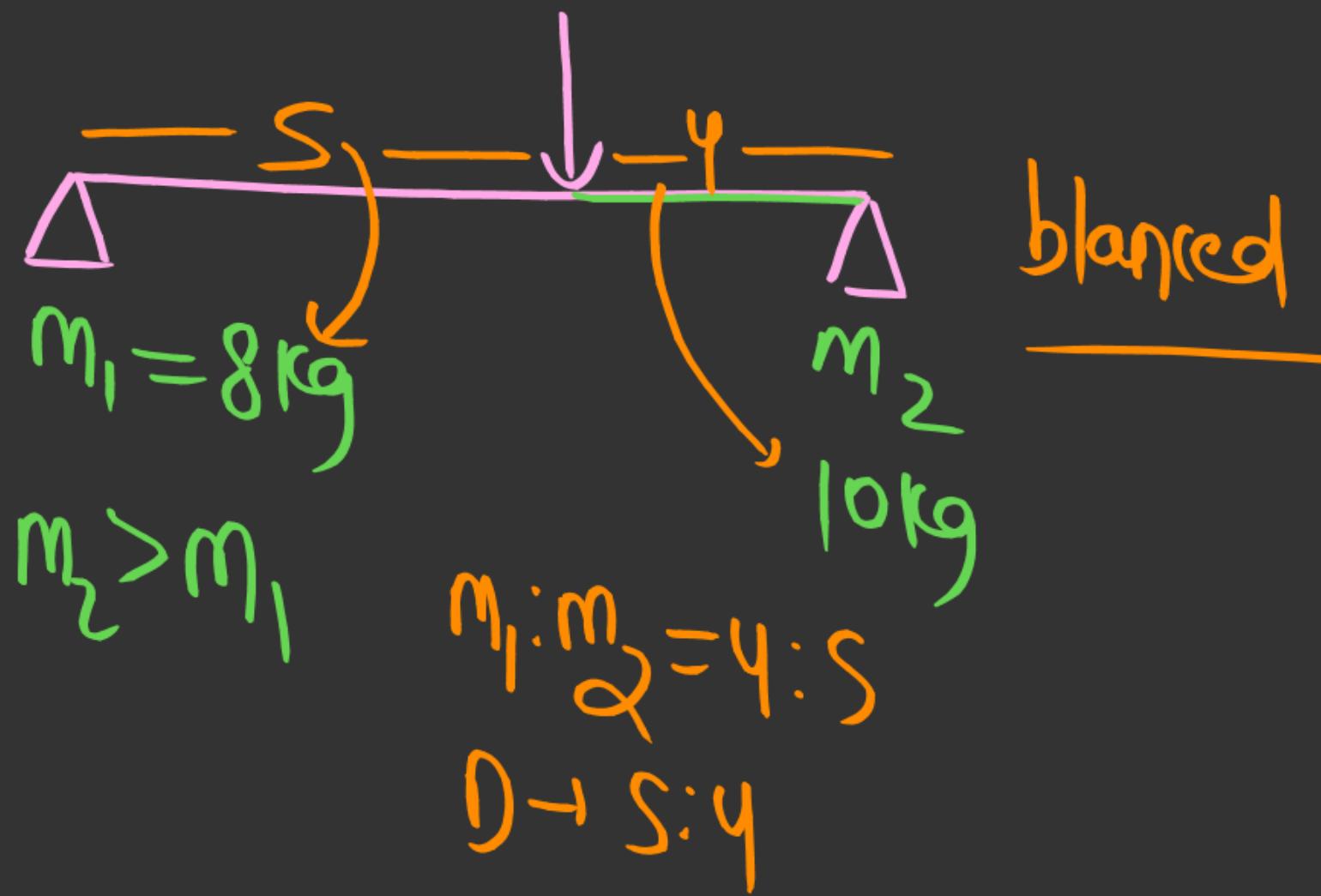
Mass Point Geometry

Mary point theorem →



balanced

$$\Rightarrow m_1 = m_2$$



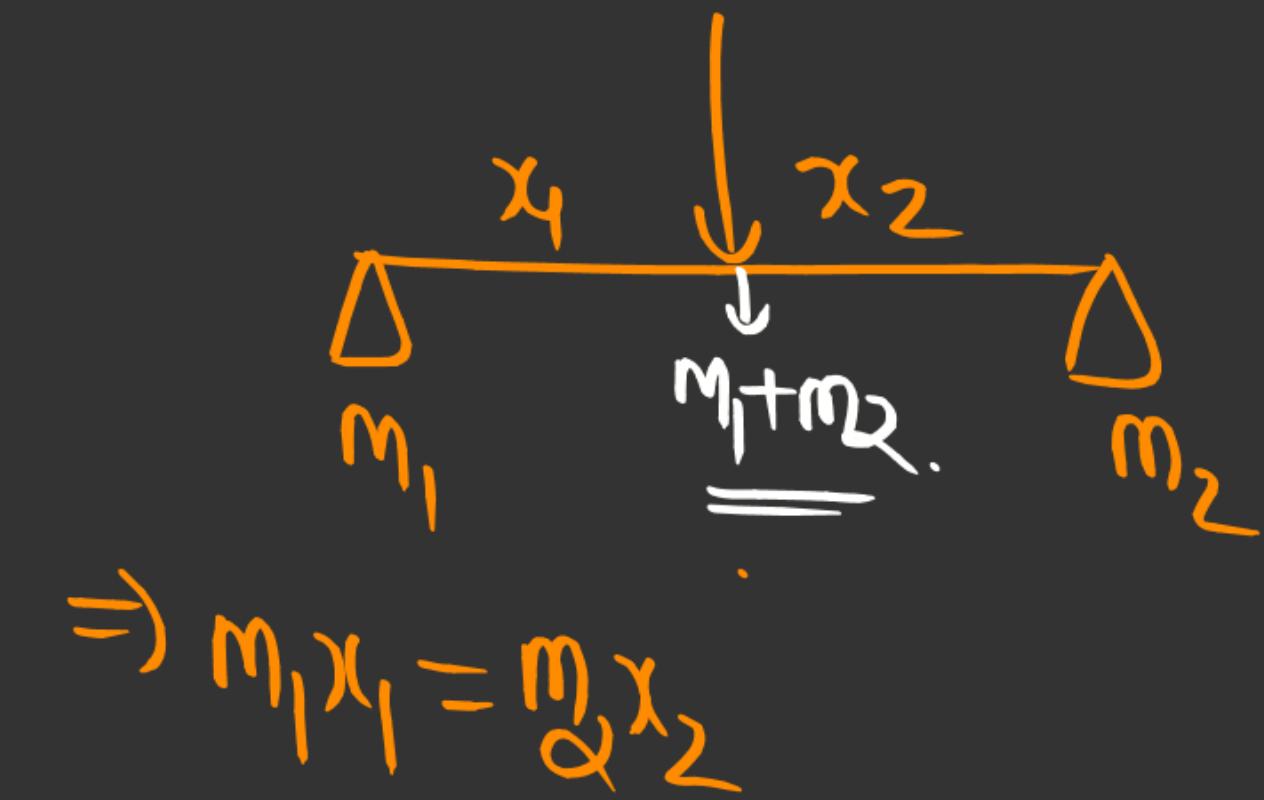
balanced

$$m_1 = 8 \text{ kg}$$

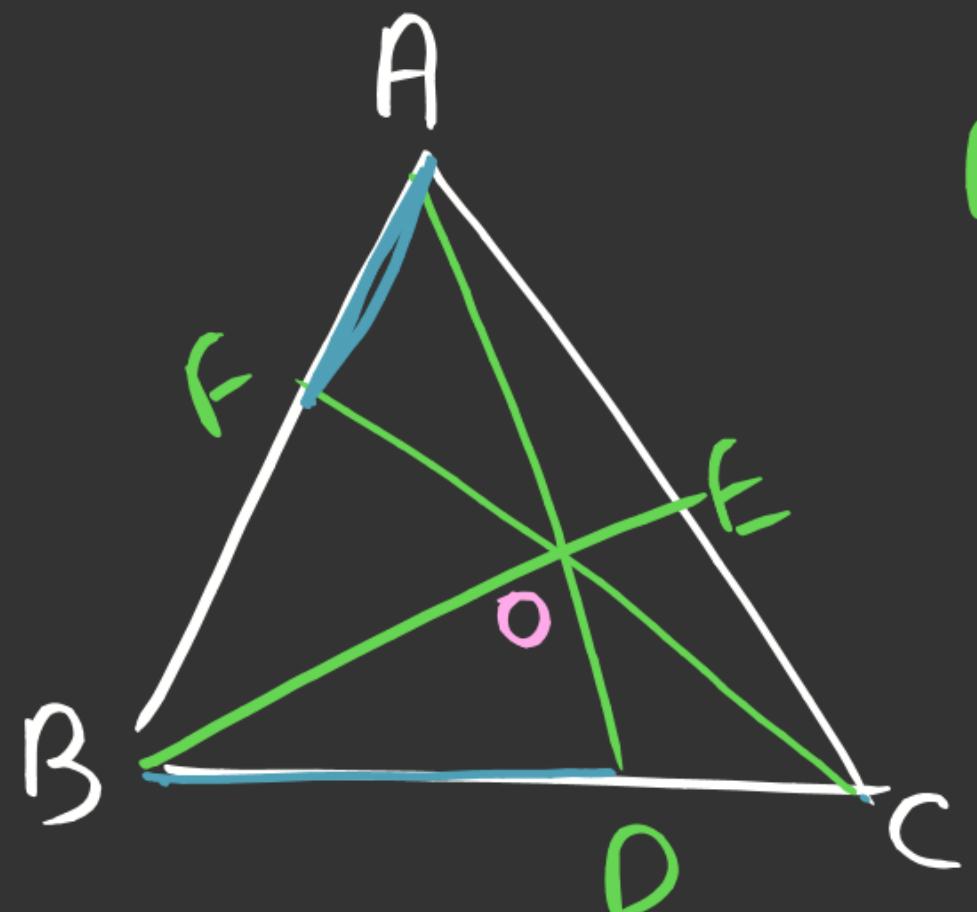
$$m_2 > m_1$$

$$m_1 : m_2 = 4 : 5$$

$$0 \rightarrow 5 : 4$$



$$\Rightarrow m_1 x_1 = m_2 x_2$$

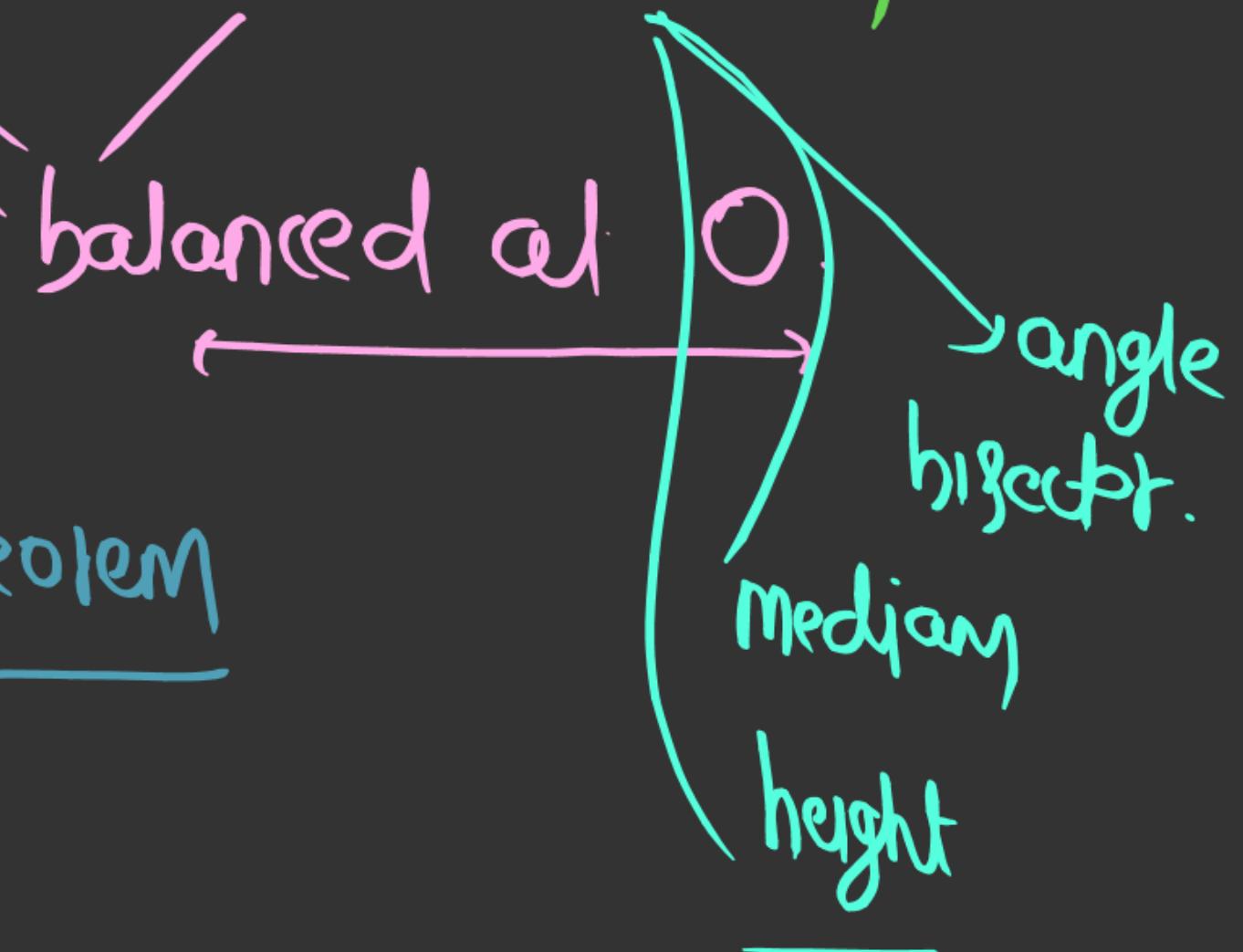


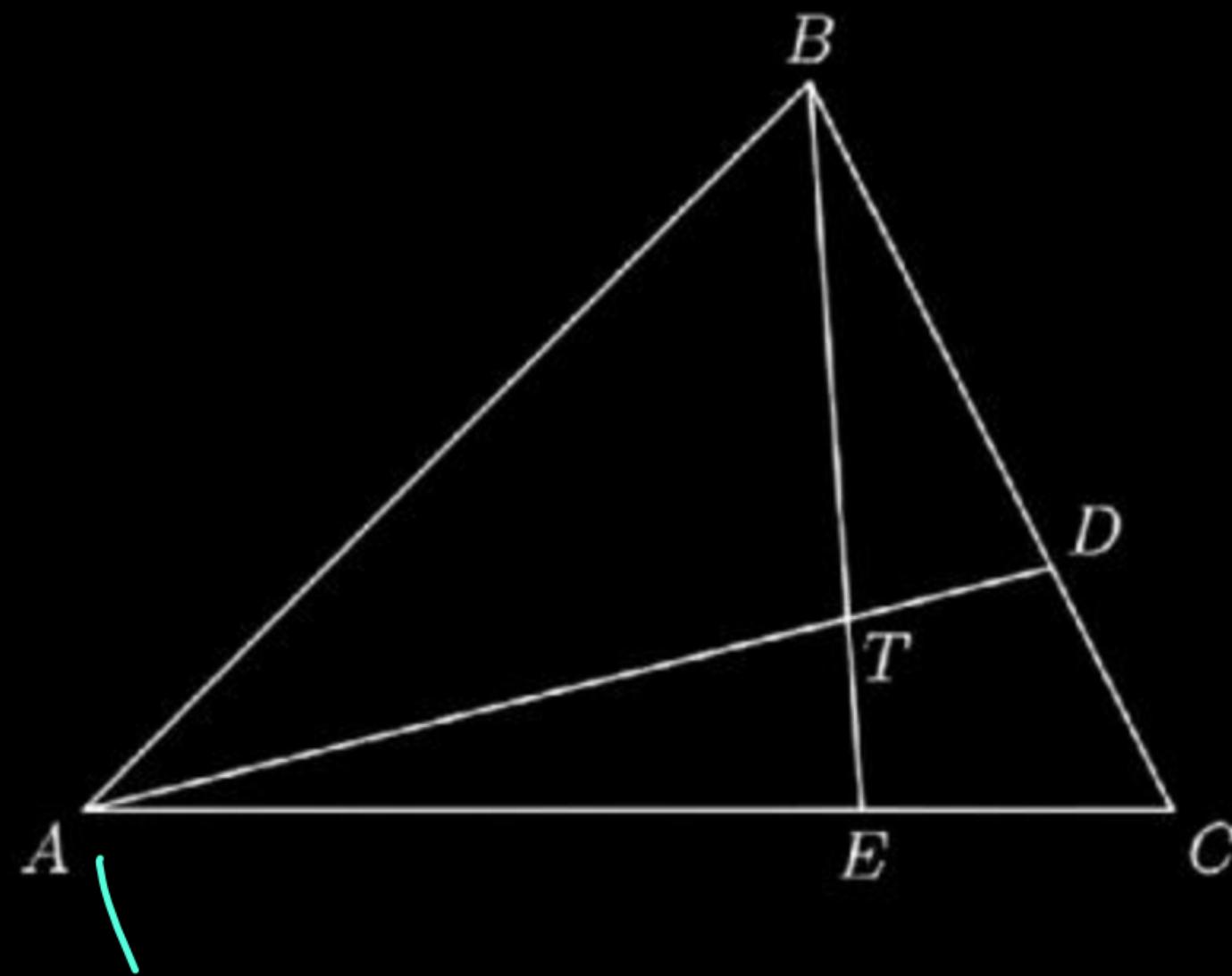
$$\frac{AF}{FB} \cdot \frac{BD}{DC} \cdot \frac{CE}{EA} = 1$$

Cevian theorem

any 3 lines from vertex cut at a single point then that are called cevian.

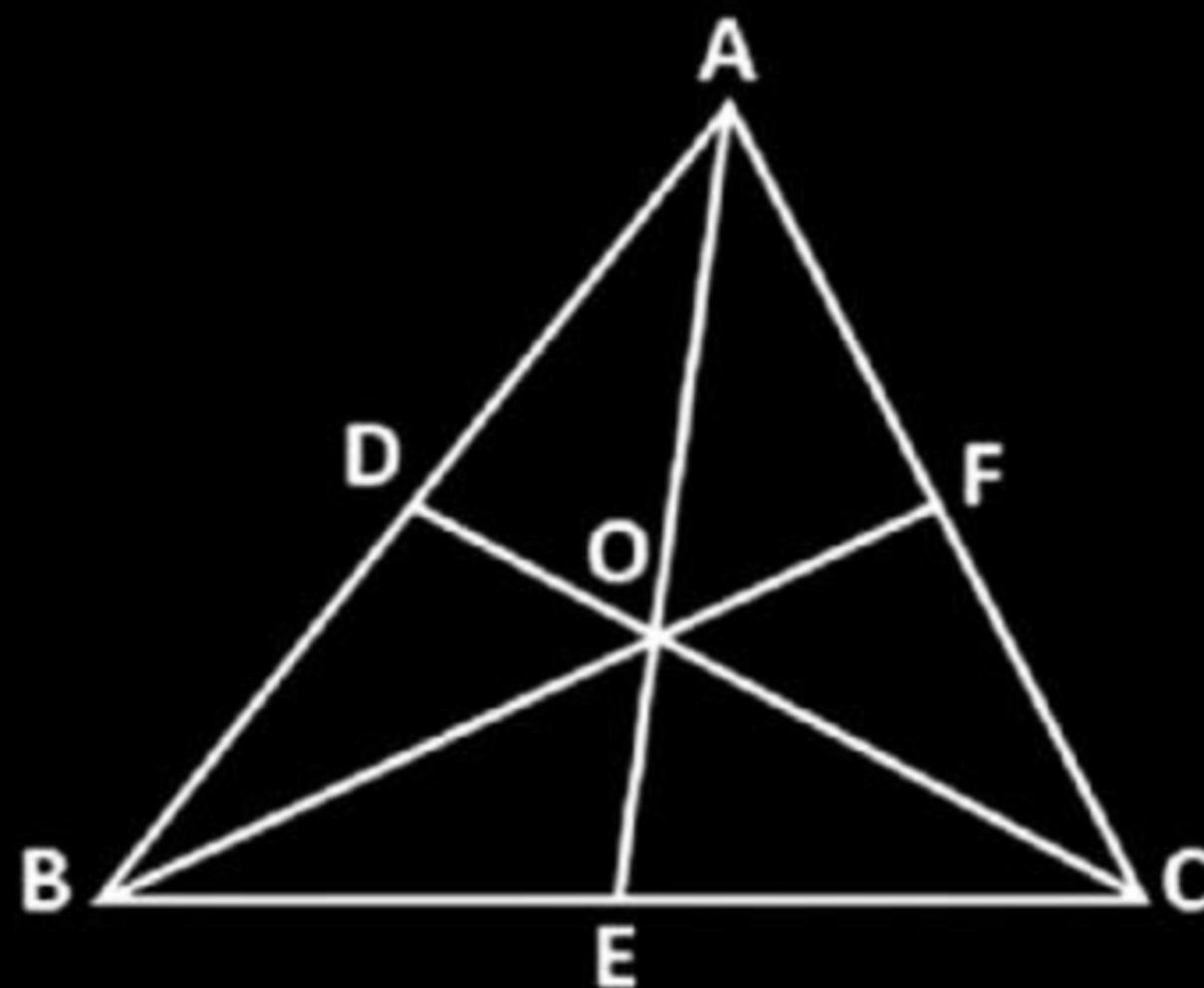
AD, BE and CF are cevian.





In $\triangle ABC$ point D and E lie on BC and AC , respectively. If AD and BE intersect at T so that $\frac{AT}{TD} = \frac{3}{1}$ and $\frac{BT}{ET} = \frac{4}{1}$, what is $\frac{CD}{BD} = ?$

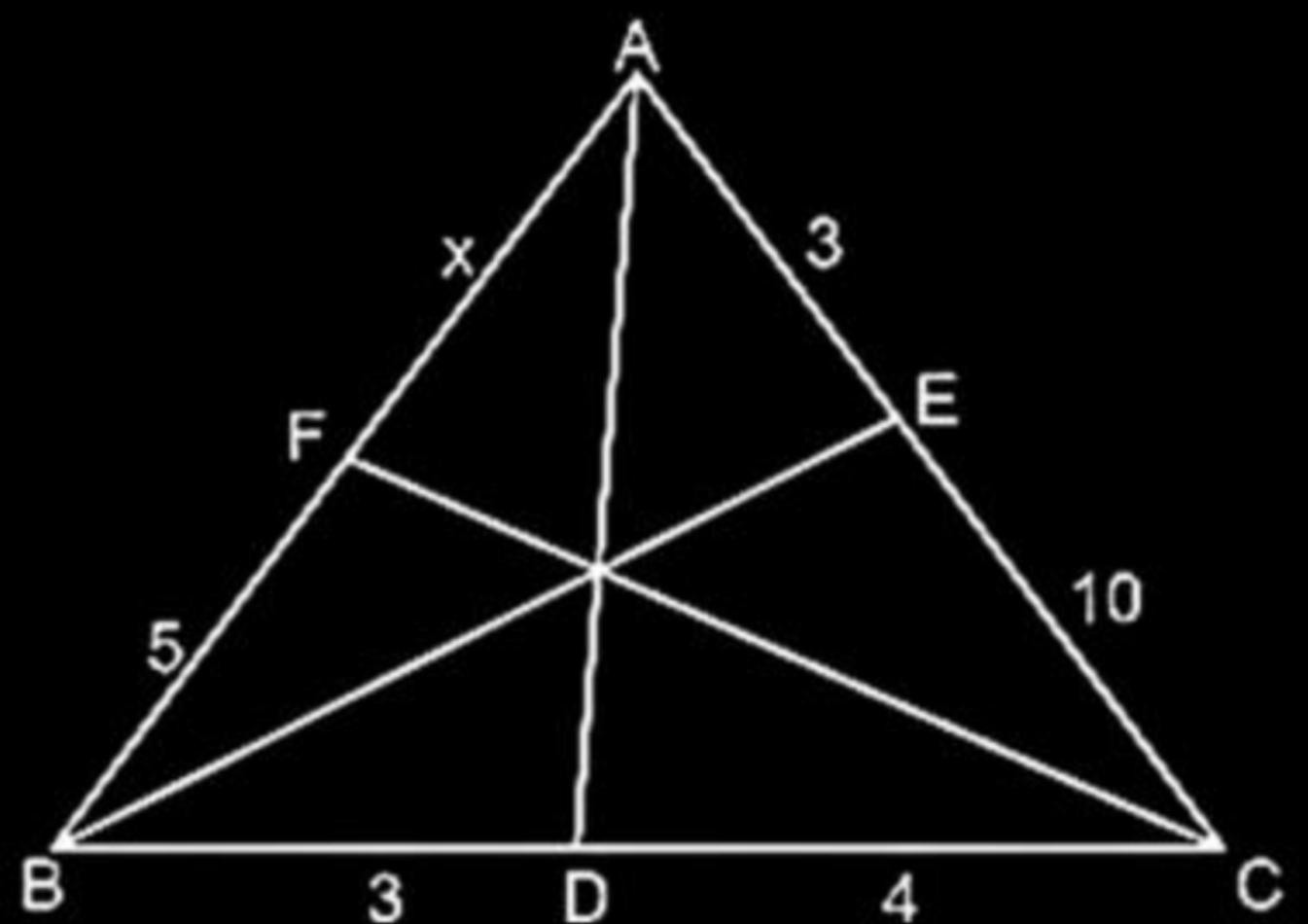
- a) $\frac{4}{11}$
- b) $\frac{5}{22}$
- c) $\frac{1}{2}$
- d) $\frac{2}{9}$



If $AO/OE = 5/4$ AND $CO/OD = 3/2$,
then find BO/OF ?

यदि $AO/OE = 5/4$ और $CO/OD = 3/2$ है, तो BO/OF ज्ञात कीजिए।

- (a) $20/9$
- (b) $25/8$
- (c) $30/7$
- (d) $38/7$



In the given figure find the value of x?

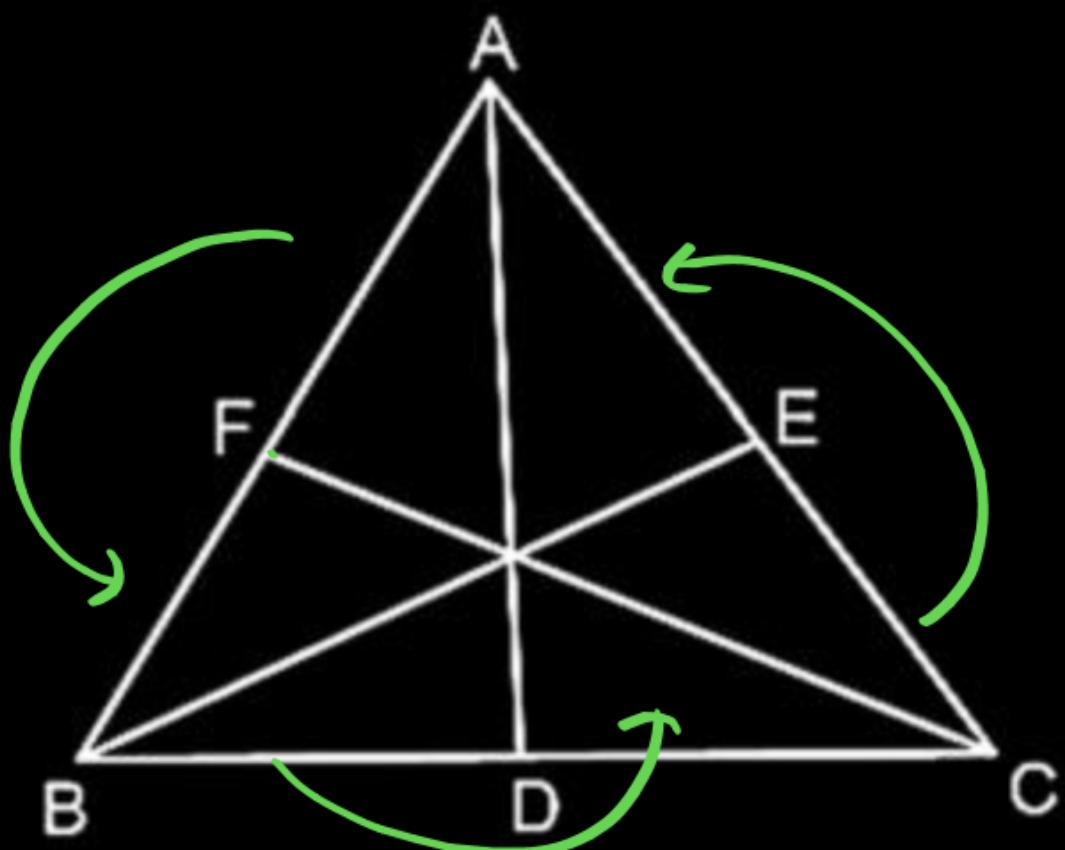
दिए गए चित्र में x का मान ज्ञात कीजिये?

Cevian theorem

- (a) 2
- (b) 3
- (c) 4
- (d) 5

$$\frac{x}{5} \cdot \frac{3}{4} \cdot \frac{10}{3} = 1$$

$$x = 2$$



$$\cancel{\frac{1}{2}} \cdot \cancel{\frac{2}{3}} \cdot \frac{AE}{EA} = 1$$

$$\frac{1}{3} = \frac{AE}{EA}$$

In the given figure $\frac{AF}{FB} = \frac{1}{2}, \frac{BD}{DC} = \frac{2}{3}$ then

find the value of $\frac{AE}{CE}$?

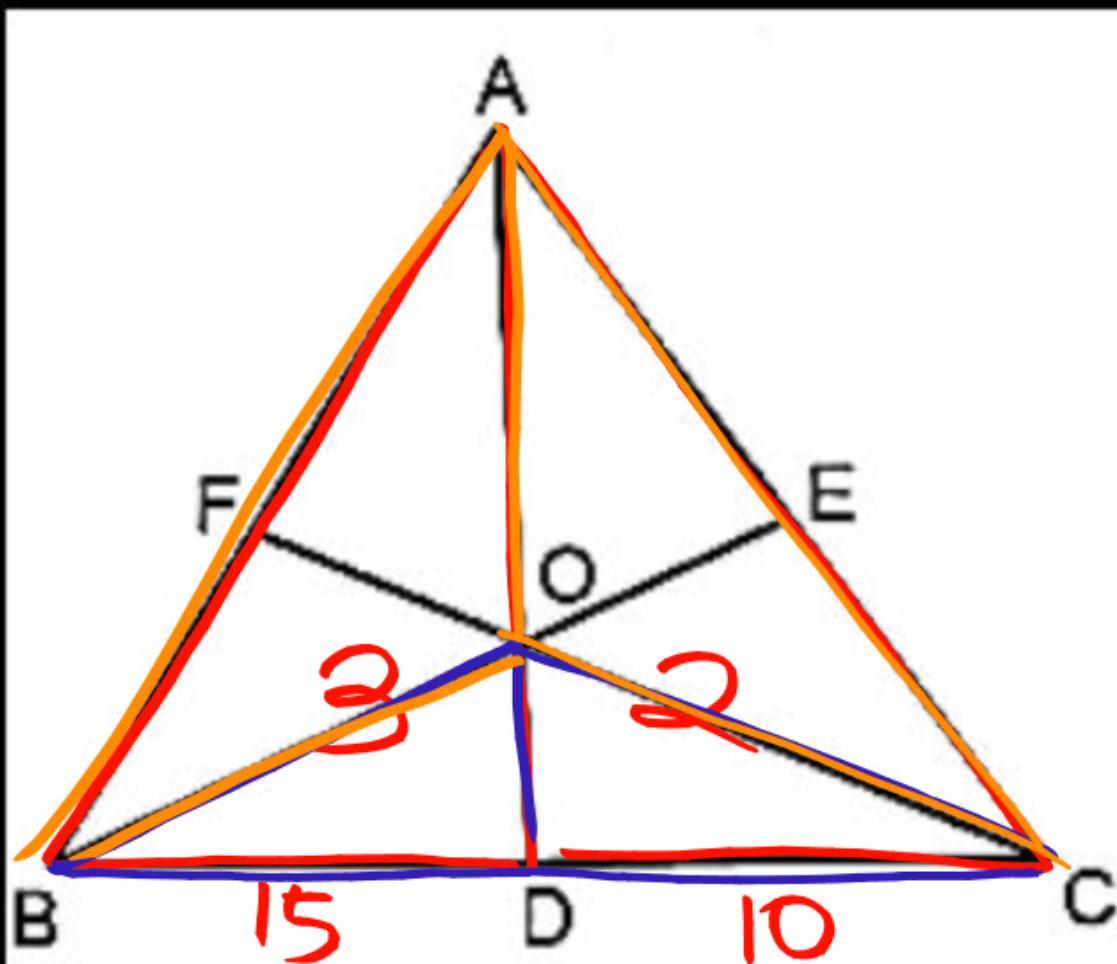
दिए गए चित्र में $\frac{AF}{FB} = \frac{1}{2}, \frac{BD}{DC} = \frac{2}{3}$ तब $\frac{AE}{CE}$ का मान ज्ञात कीजिये?

(a) $\frac{3}{1}$

(c) $\frac{3}{4}$

(b) $\frac{1}{3}$

(d) $\frac{4}{5}$



$$\frac{3}{15} : \frac{2}{10}$$

$$\frac{3}{15} : \frac{2}{10}$$

$$3 \rightarrow 12$$

$$2 - 28$$

In $\triangle ABC$, point O is intersection point of AD, BE and CF. If $BD = 15\text{cm}$ and $CD = 10\text{cm}$ If Area of $\triangle AOC = 28\text{ cm}^2$ then find the area of $\triangle AOB$?

$\triangle ABC$ में, बिंदु O, AD, BE और CF का प्रतिच्छेदन बिंदु है। यदि $BD = 15\text{cm}$ और $CD = 10\text{cm}$, यदि $\triangle AOC$ का क्षेत्रफल = 28 cm^2 है, तो $\triangle AOB$ का क्षेत्रफल ज्ञात कीजिए।

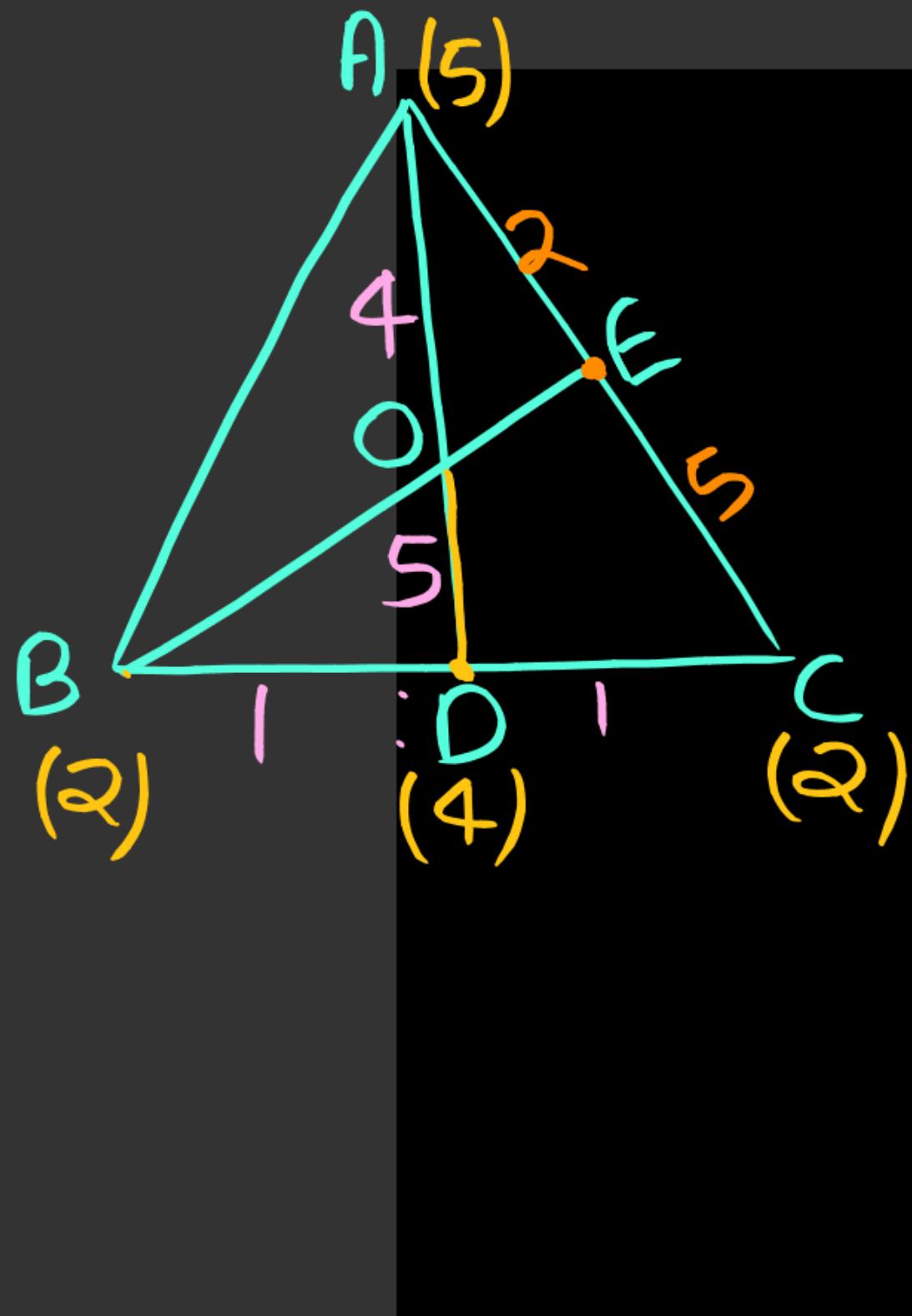
- (a) 38
- (b) 42
- (c) 57
- (d) 28

$$ABD + ACD = 3x + 2x$$

$$OBD + OCD = 3y + 2y$$

$$AOB + AOC = 3(x-y) + 2(x-y)$$

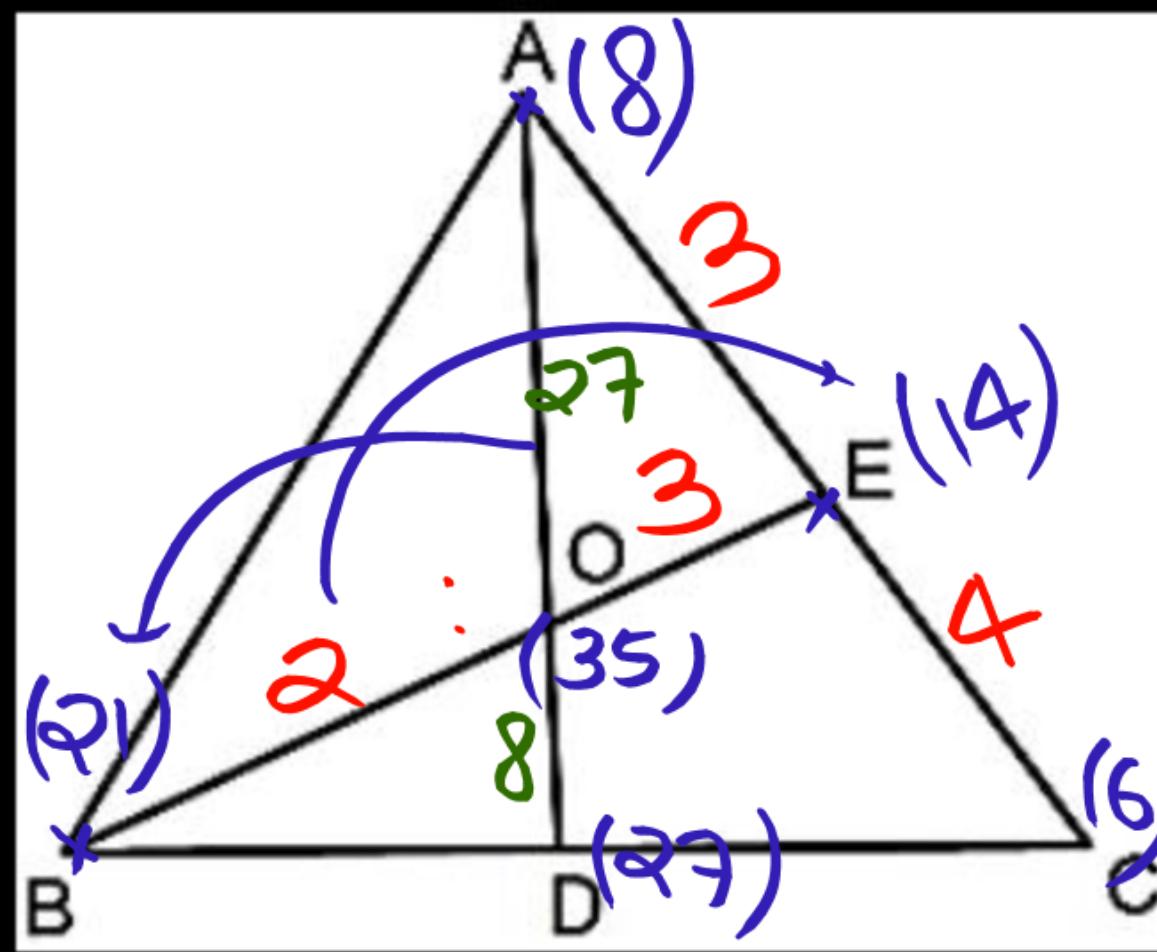
∴ 3:y



In $\triangle ABC$, AD is the median of side BC . E is a point on side AC such that BE intersects AD at point O and $AO : OD = 4 : 5$. Find $AE : EC = ?$

त्रिभुज ABC में, भुजा BC पर AD माध्यिका है। जबकि भुजा AC पर एक बिंदु E इस प्रकार है कि BE , AD को बिंदु O पर काटता है और $AO : OD = 4 : 5$ तब $AE : EC$ का मान होगा?

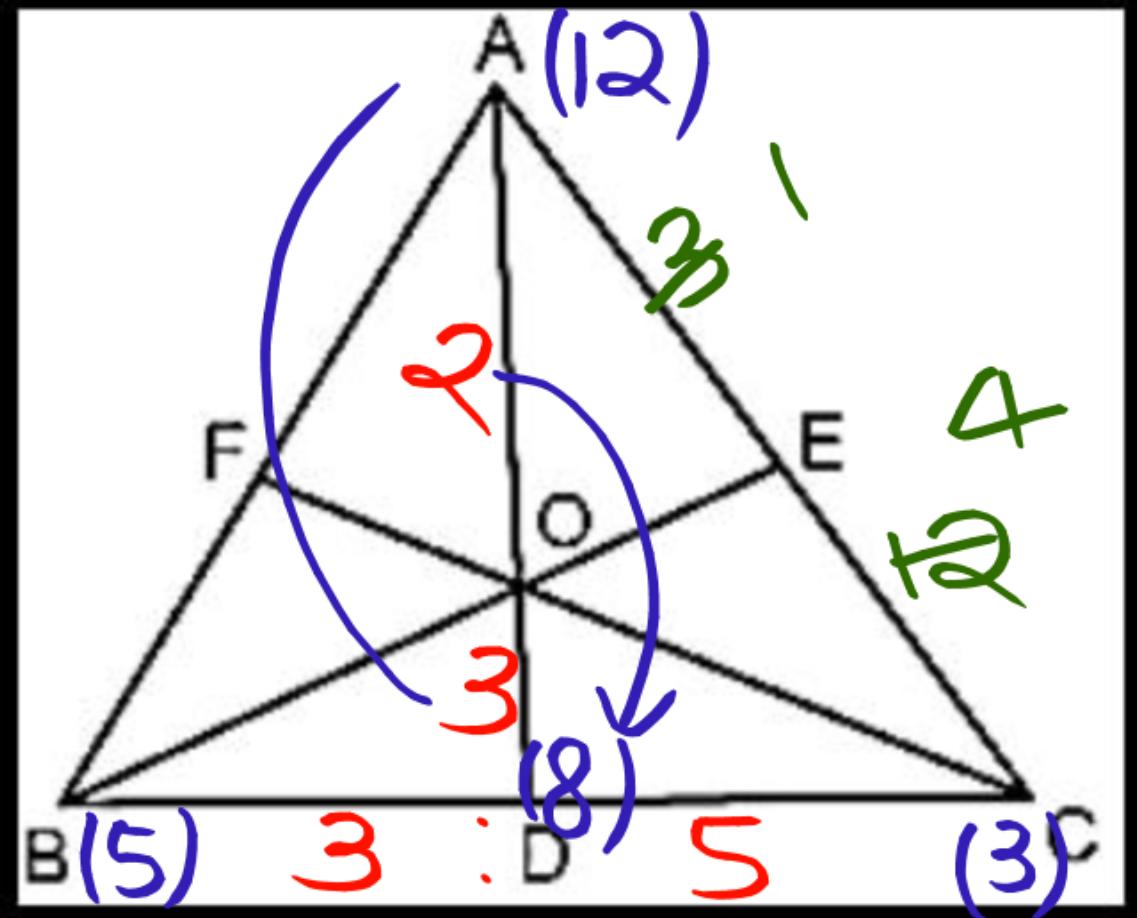
- a) $4 : 7$
- b) $2 : 5$
- c) $4 : 9$
- d) $1 : 3$



In the given figure. $BO : OE = 2 : 3$, $AE : EC = 3 : 4$, then find the ratio of $AO : OD$?

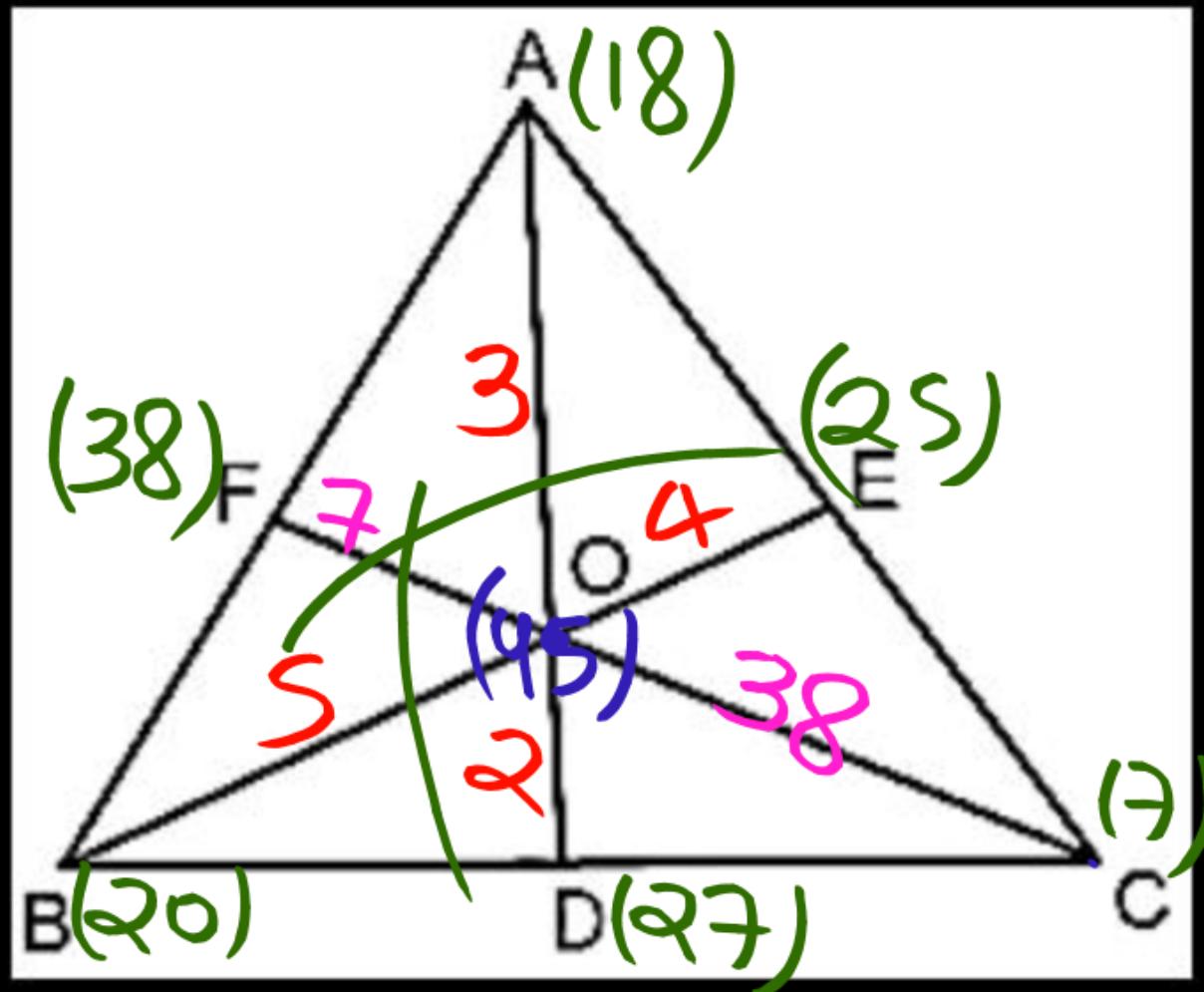
दी गई आकृति में $BO : OE = 2 : 3$, $AE : EC = 3 : 4$, तो $AO : OD$ का अनुपात ज्ञात कीजिए।

(a) $25 : 9$
 (b) $25 : 8$
 (c) $9 : 10$
 (d) $7 : 9$



In the given figure. $AO : OD = 2 : 3$ and $BD : DC = 3 : 5$ then find the ratio of $AE : EC$?

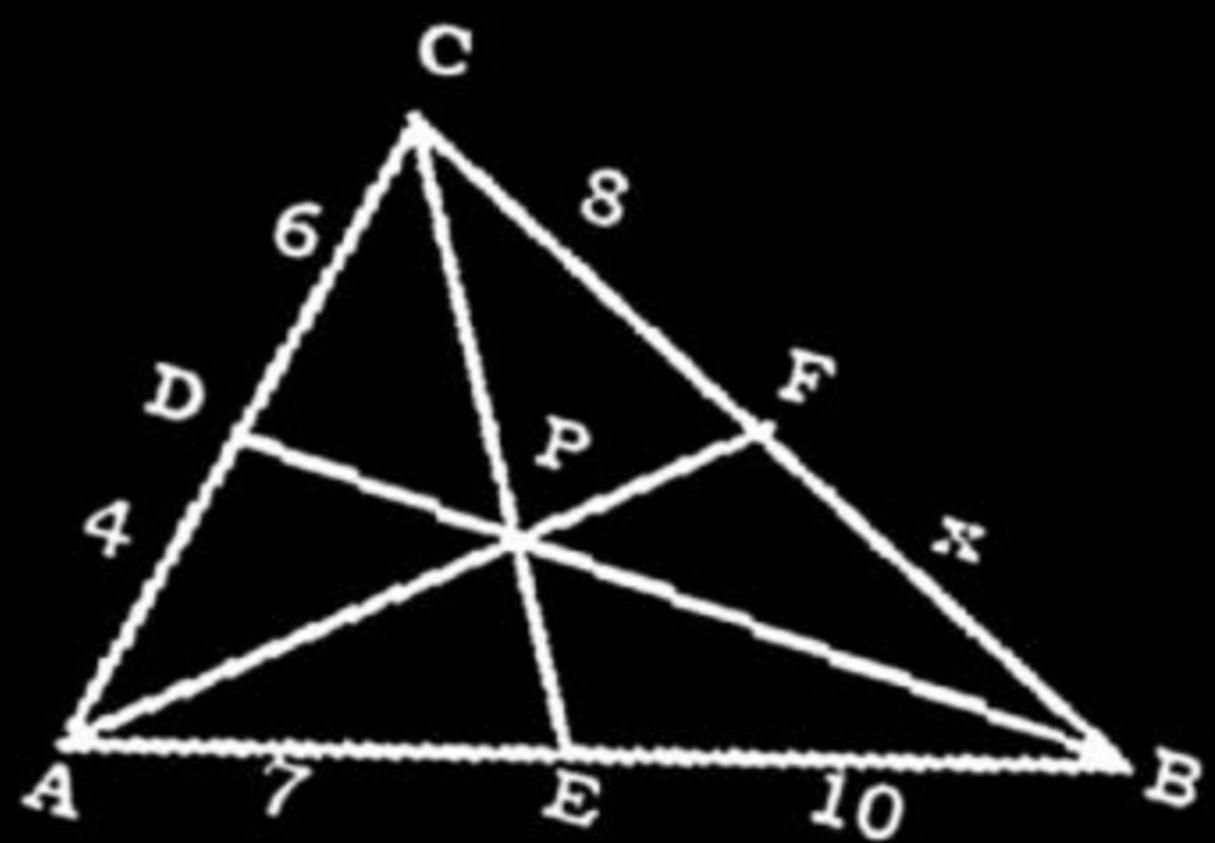
- (a) 1:2
 - (b) 1:3
 - (c) 1:4
 - (d) 1:5



In the given figure, $AO : OD = 3 : 2$,
 $BO : OE = 5 : 4$ then find the ratio of
 $CO : OF$?

- (a) 38:7
- (b) 23:8
- (c) 32:7
- (d) 11:5





In the given figure, find the value of x?

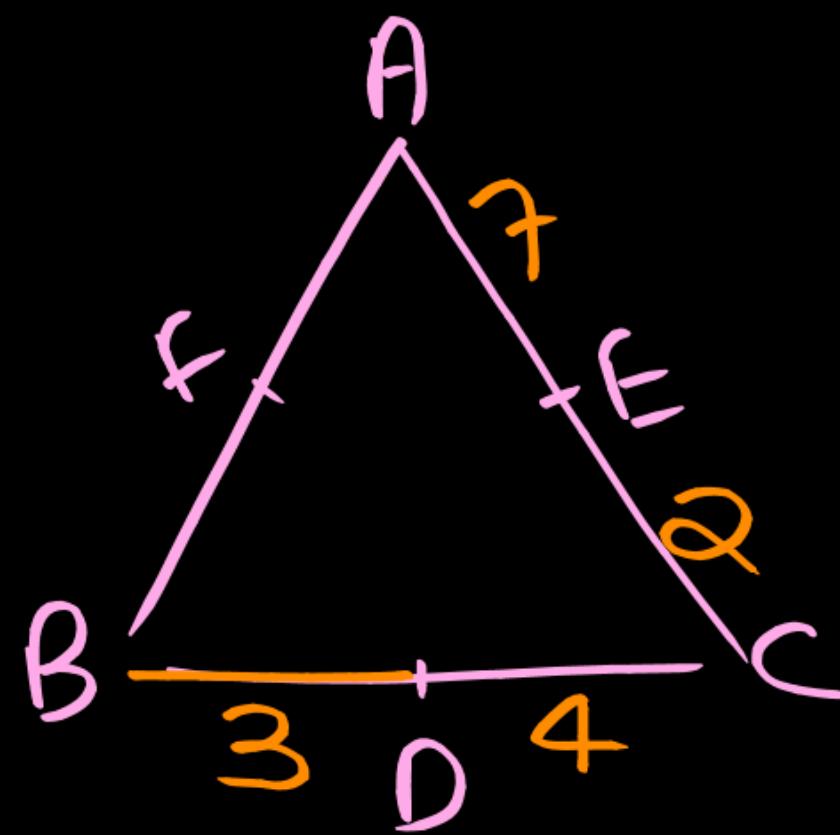
दी गई आकृति में, x ज्ञात कीजिए?

- a) 7.6
- b) 7
- c) 8
- d) 8.4

$$\frac{36}{4} \cdot \frac{7}{15} \cdot \frac{x}{8} = 1$$

$$21x = 160$$

$$x = 160/21 = 7.6$$



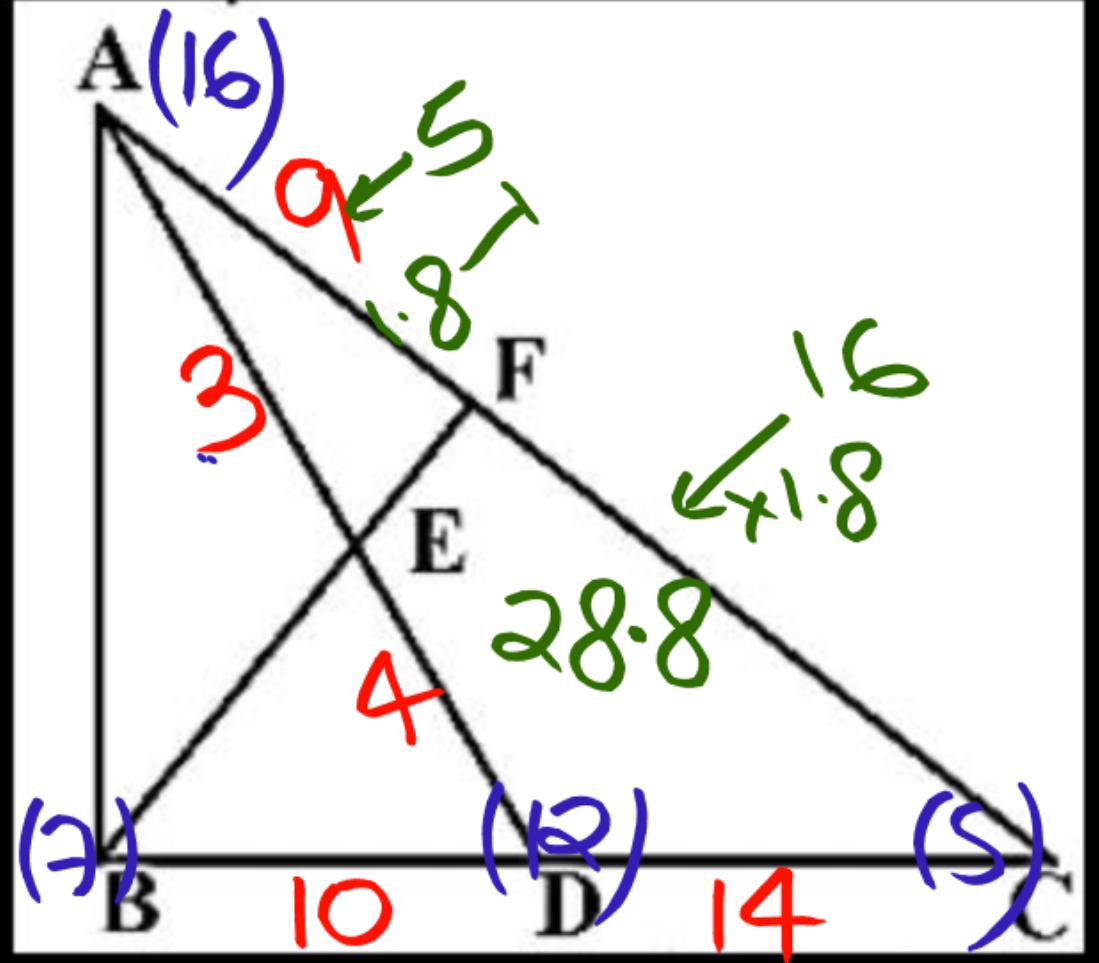
$$\frac{AF}{FB} \cdot \frac{3}{4} = 1$$

$$\frac{AF}{FB} = \frac{14}{3}$$

In $\triangle ABC$, D, E and F are 3 points on side BC, CA and AB respectively if $BD : CD = 3 : 4$, $CE : CA = 2 : 9$ then $CE : CA = 2 : 9$ $AF : FB = ?$

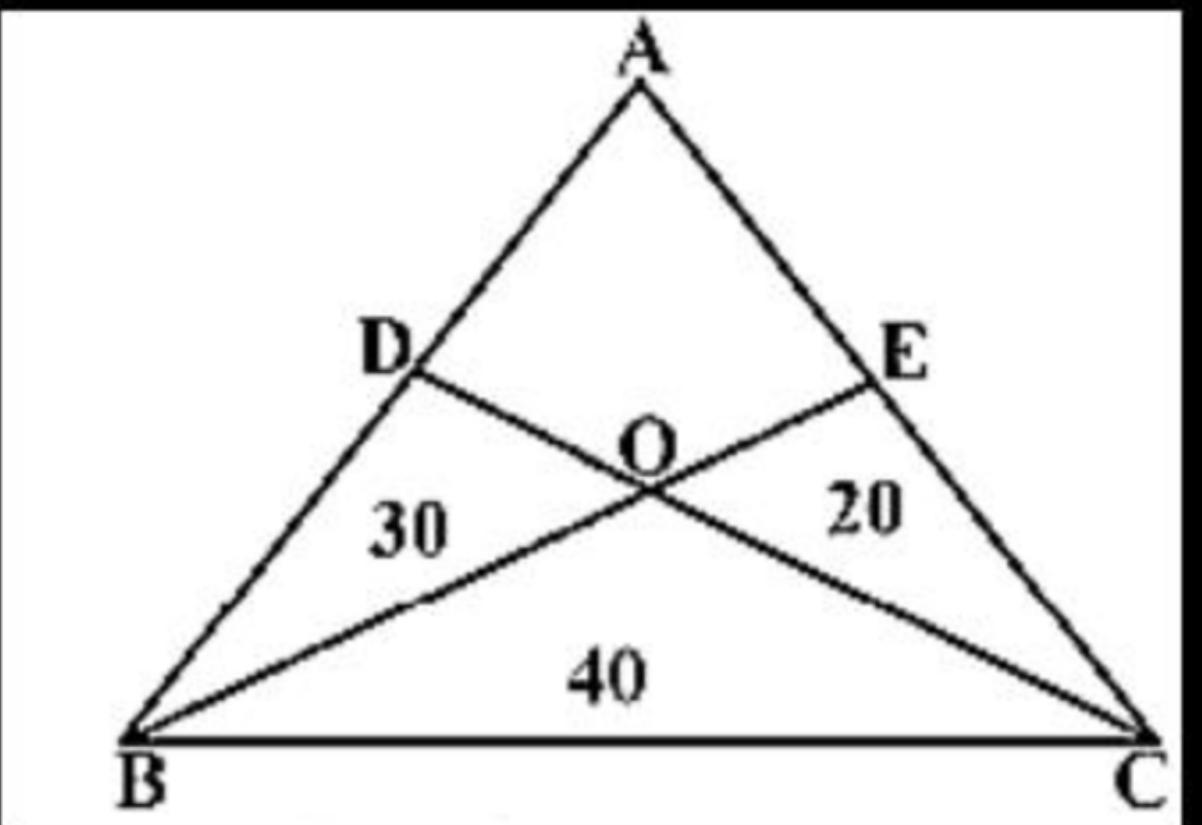
$\triangle ABC$ में, भुजा BC, CA और AB पर क्रमशः D, E और F तीन बिंदु हैं यदि $BD : CD = 3 : 4$, $CE : CA = 2 : 9$ तो $CE : CA = 2 : 9$, $AF : FB = ?$

- a) 4:1 b) 35:8
- c) 7:2 d) 14:3



$$10:14 = 5:7$$

- In the fig. below, $BD = 10\text{cm}$ and $DC = 14\text{cm}$. $AE : ED = 3 : 4$. If $AF = 9\text{cm}$, find AC (in cm) ?
- a) 36cm
 - b) 37.8cm
 - c) 40.5cm
 - d) 34.2cm

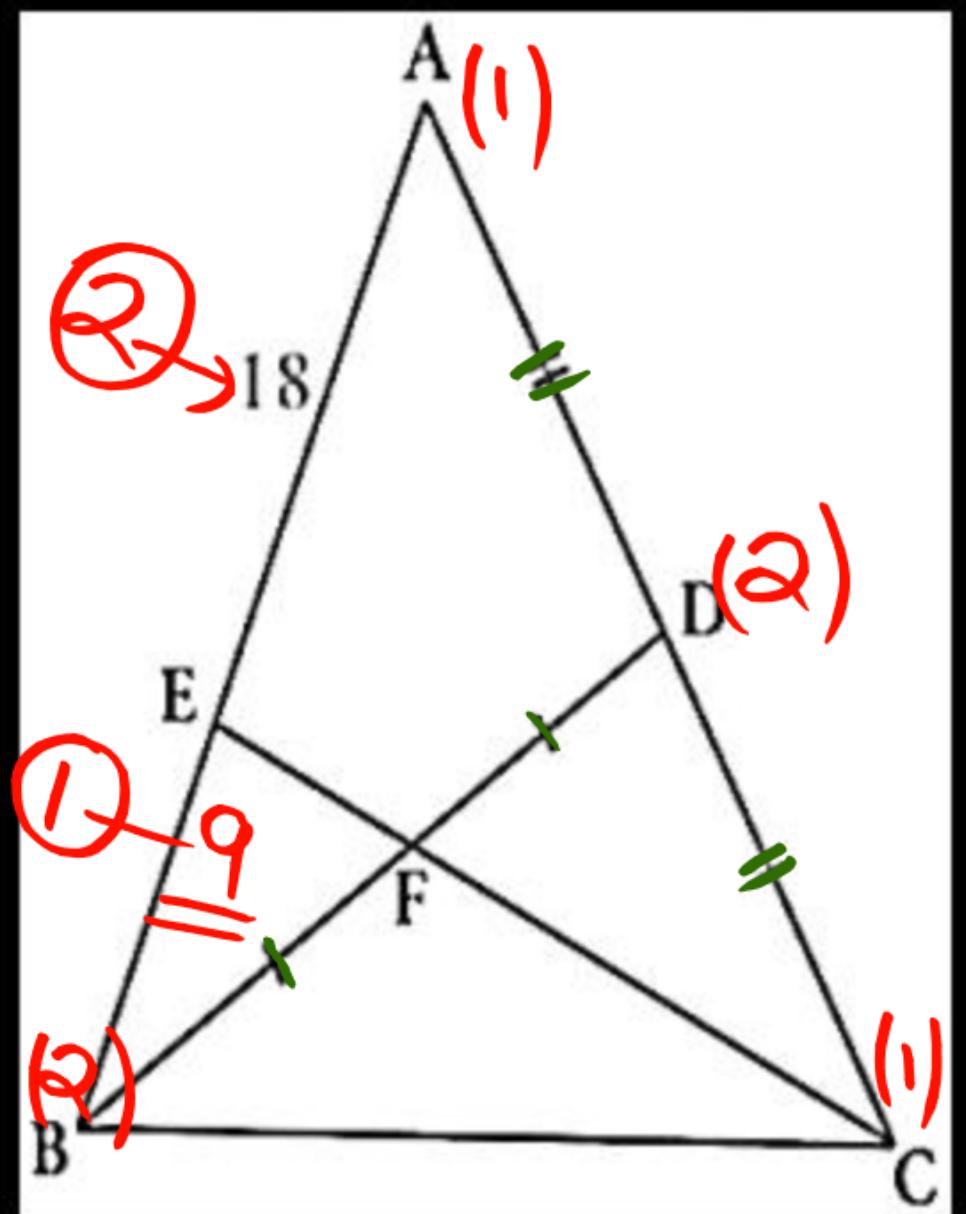


In the given fig. $\text{area}(\Delta BOD) = 30$, $\text{area}(\Delta COD) = 20$, & $\text{area}(AOB) = 40$ then find $\text{area}(\Delta ABC) = ?$

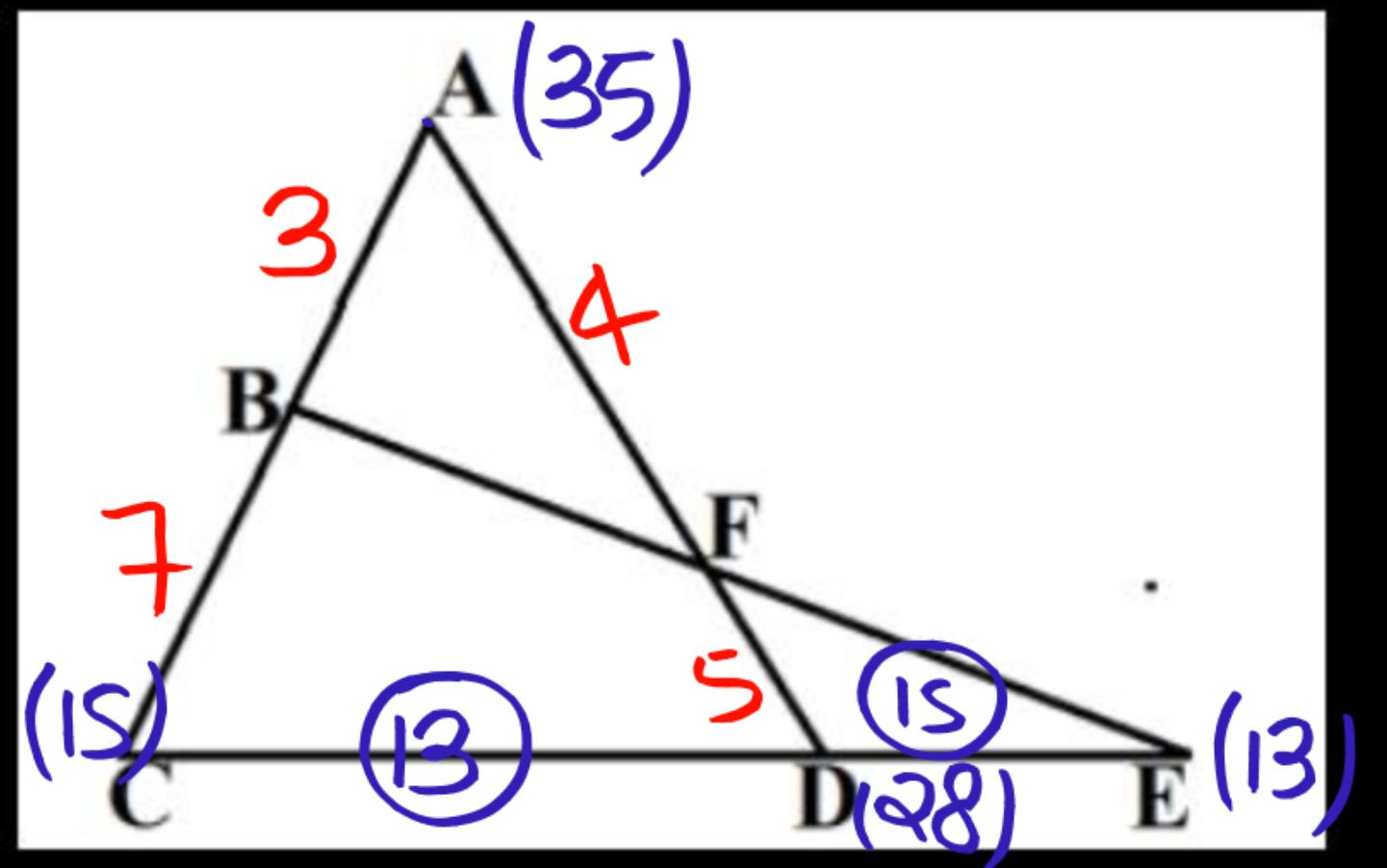
- a) 168
- b) 192
- c) 210
- d) 184

Find BE = ?

- (a) 9 cm
- (b) 6 cm
- (c) 12 cm
- (d) 10 cm



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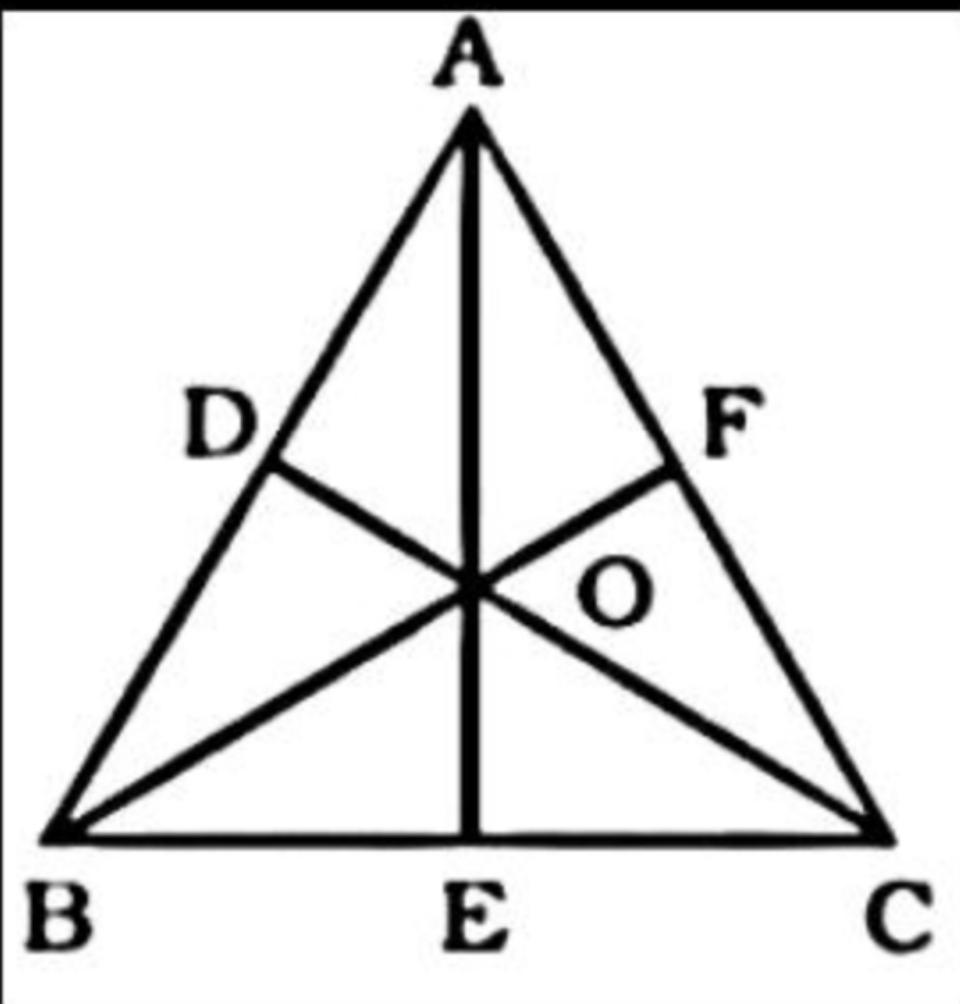


If $AB : BC = 3 : 7$ and $AF : DF = 4 : 5$, What is the ratio of DE to CD ?

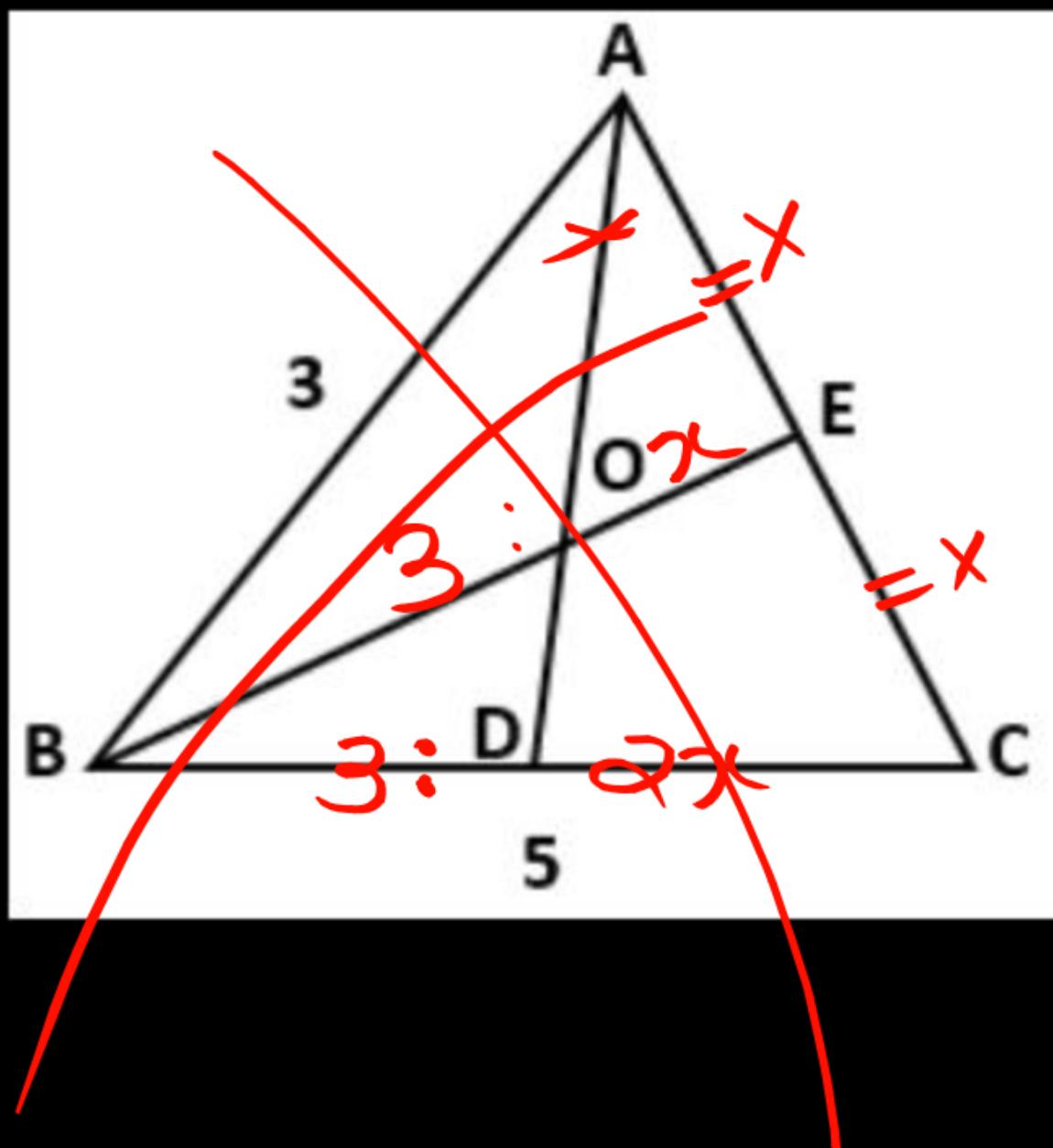
- a) $14 : 11$
- b) $13 : 15$
- c) $11 : 18$
- d) $15 : 13$

In the given figure, O is the in-centre of triangle ABC. If $\frac{AO}{OE} = \frac{5}{4}$ AND $\frac{CO}{OD} = \frac{3}{2}$, what is the value of $\frac{BO}{OF}$?

दी गई आकृति में, O त्रिभुज ABC का अंतःकेंद्र है। यदि $\frac{AO}{OE} = \frac{5}{4}$ और $\frac{CO}{OD} = \frac{3}{2}$, $\frac{BO}{OF}$ का मान क्या है?



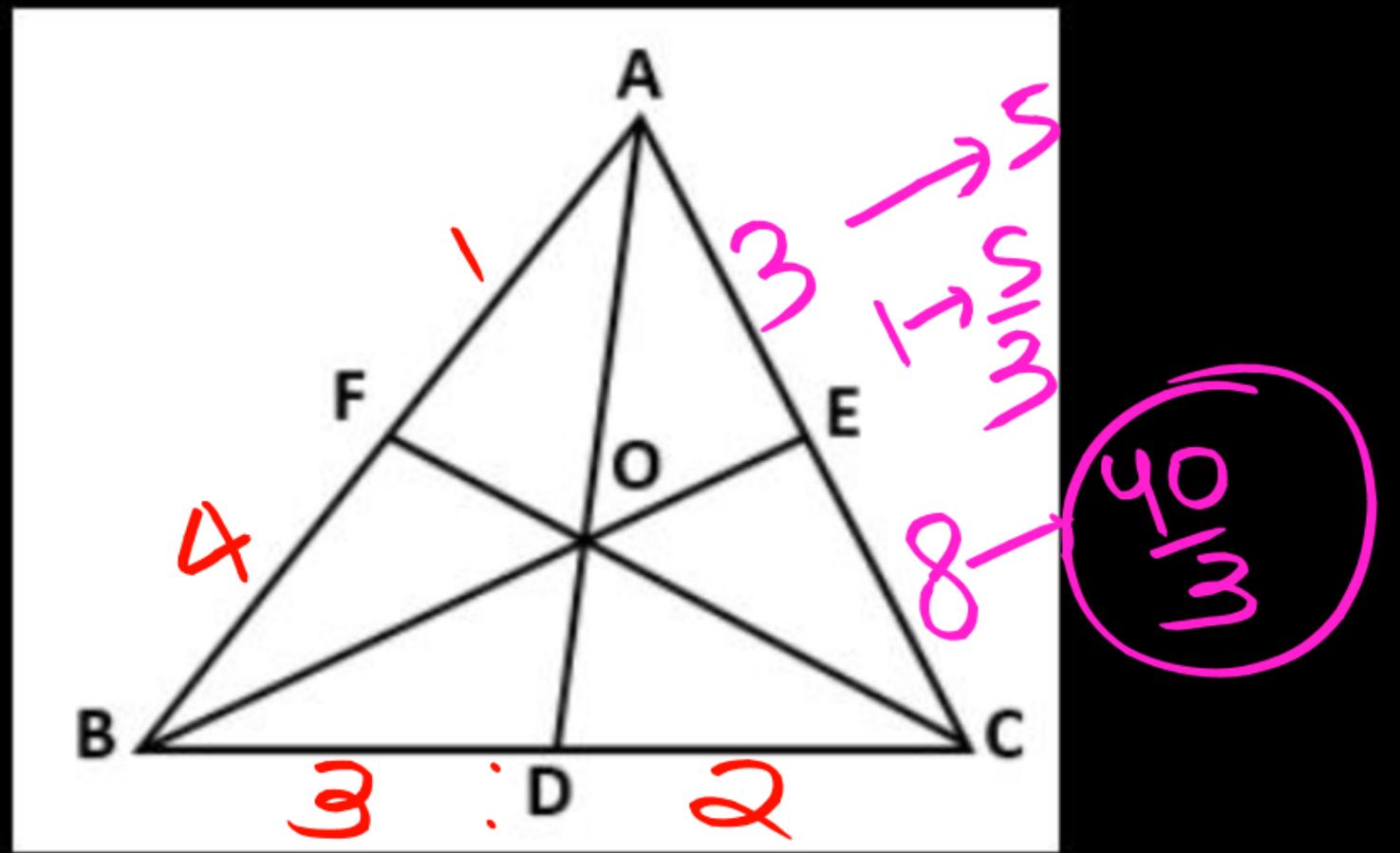
- (a) $\frac{19}{14}$
- (b) $\frac{38}{17}$
- (c) $\frac{38}{7}$
- (d) $\frac{19}{7}$



In the given figure, ABC is a triangle in which BE is median and AD is angle bisector, then find $\frac{AO}{OD}$?

दी गई आकृति में, ABC एक त्रिभुज है जिसमें BE माध्यिका है और AD कोण समद्विभाजक है, तो $\frac{AO}{OD}$ ज्ञात कीजिए।

- (a) $\frac{7}{3}$
- (b) $\frac{5}{3}$
- (c) $\frac{4}{3}$
- (d) $\frac{8}{5}$



ABC is triangle in which $BF : FA = 4 : 1$ and $BD : DC = 3 : 2$ and $AE = 5 \text{ cm}$, then find EC ?

ABC एक त्रिभुज है जिसमें $BF : FA = 4 : 1$ और $BD : DC = 3 : 2$ और $AE = 5 \text{ सेमी}$ है, तो EC ज्ञात कीजिए?

- (a) 12 cm
- (b) 13 cm
- (c) $\frac{40}{3} \text{ cm}$
- (d) None

$$\frac{1}{4} \cdot \frac{3}{5} \cdot \frac{4E}{EA} = 1$$

$$\frac{E}{EA} = \frac{8}{3}$$

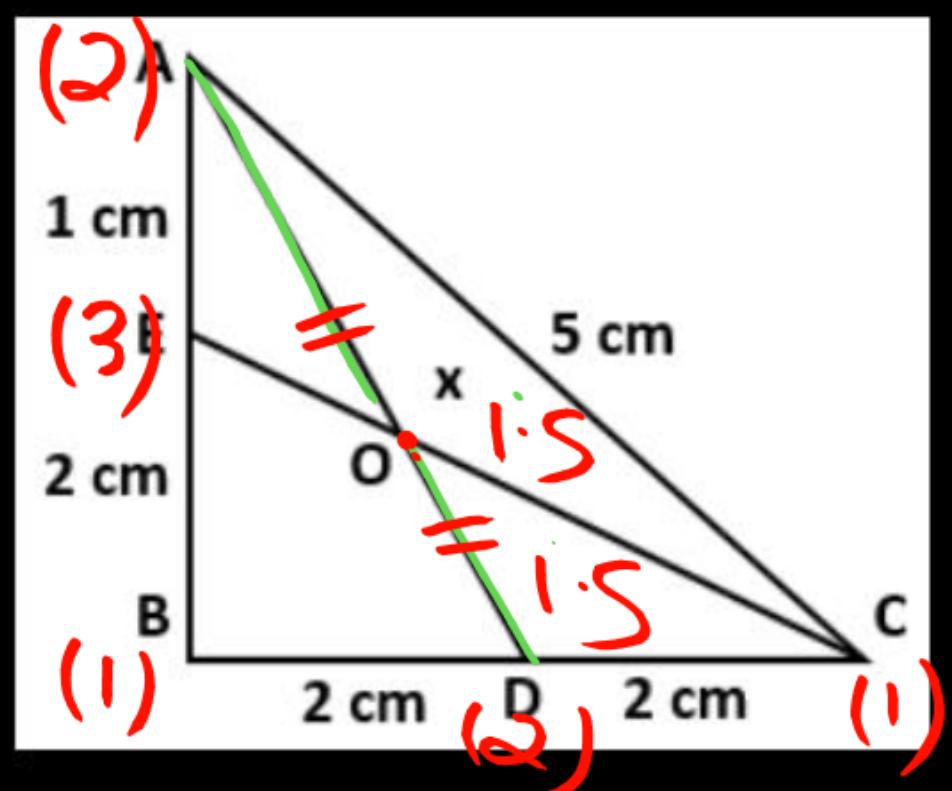
In the given figure, find the area of region x ?
 दी गई आकृति में, क्षेत्र x का क्षेत्रफल ज्ञात कीजिए।

(a) 1

(b) 2

(c) $\frac{1}{2}$

(d) $\frac{3}{2}$



$$\left. \begin{aligned} \text{Area of } \triangle ABC &= \frac{1}{2} \times 3 \times 4 = 6 \\ \text{Area of } \triangle ABD &= \frac{1}{2} \times 3 \times 2 = 3 \end{aligned} \right\} \text{Area of region } x = 6 - 3 = 3$$

triangle — more than sufficient

6:30 - 7:55

8:05 - 9:30 - algebra.

CI-difference

installment