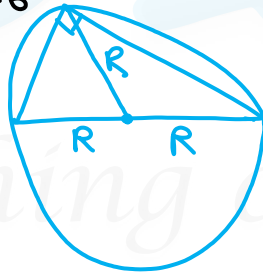


$$S = 21$$

$$\begin{aligned} \text{Area } CED &= \sqrt{\frac{21 \times 8 \times 7 \times 6}{2}} \\ &= 7 \times 3 \times 4 = 84 \end{aligned}$$

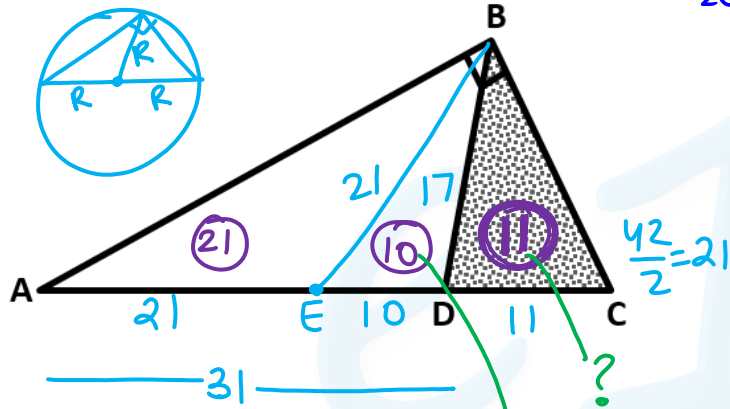


19. ΔABC is right angled at C . If $AD = 29 \text{ cm}$, $BD = 1 \text{ cm}$ and $CD = 13 \text{ cm}$, find the area of the ΔBCD .

ΔABC में वृत्त C पर समकोण है। यदि $AD = 29 \text{ cm}$, $BD = 1 \text{ cm}$ और $CD = 13 \text{ cm}$ है तो ΔBCD का क्षेत्रफल बताइए।

- a) 4 cm^2
c) 8 cm^2

- ~~b) 6 cm^2~~
c) 10 cm^2



20. In the given figure, ABC is a right angle triangle at B, D is a point on AC such that $DC = 11, AD = 31$ and $BD = 17$, find the area of shaded region?

दिए गए चित्र में, ABC एक समकोण त्रिभुज है, जहाँ B समकोण है। AC भुजा पर एक बिंदु D इस प्रकार है कि $DC = 11, AD = 31$ और $BD = 17$ हैं, तब छायांकित भाग का क्षेत्रफल क्या होगा?

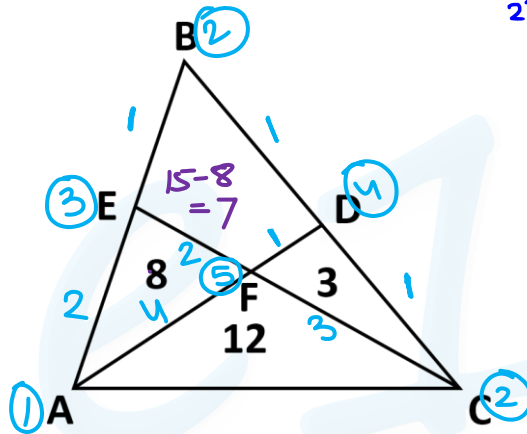
————— 31 —————

$\triangle BED, S = \frac{48}{2} = 24$

area = $\sqrt{\frac{24 \times 31 \times 7 \times 11}{4}}$
 $= 7 \times 6 \times 2 = 84$

$\frac{84 \times 11}{10} = 92.4$

- a) 84 cm^2
- b) 96.8 cm^2
- c) 92.4 cm^2
- d) 88 cm^2



22. In the given figure, the areas (in square units) of some triangles are indicated. Based on the data, find the area of quadrilateral BDFE.

दिए गए चित्र में कुछ त्रिभुजों के क्षेत्रफल (वर्ग इकाई में) दर्शाए गए हैं। इस जानकारी के आधार पर, चतुर्भुज BDFE का क्षेत्रफल बताएं।

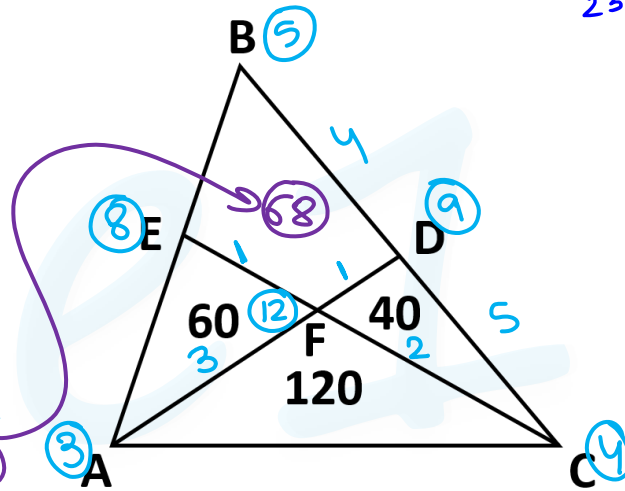
- a) 3
~~b) 7~~

- b) 4
 d) 14

coaching center

$$\frac{16^2}{8} = 32 \times 4$$

$$\begin{array}{r} 128 \\ - 60 \\ \hline 68 \end{array}$$

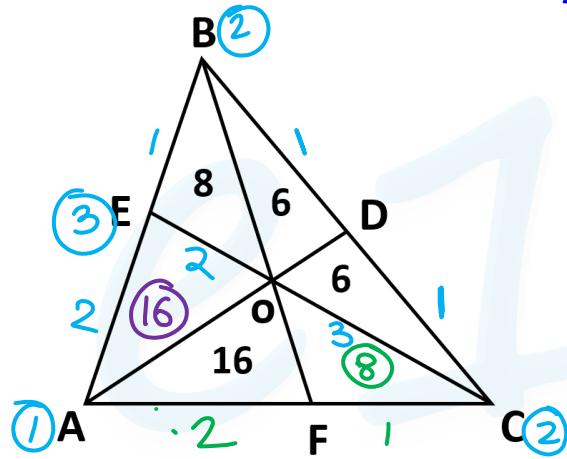
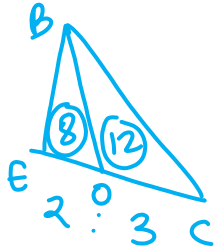


23. In the given figure, the areas (in square units) of some triangles are indicated. Based on the data find the area of quadrilateral BDFE.

दिए गए चित्र में कुछ त्रिभुजों के क्षेत्रफल (वर्ग इकाई में) दर्शाए गए हैं। इस जानकारी के आधार पर चतुर्भुज BDFE का क्षेत्रफल बताएं।

- a) 36
- ~~b) 68~~
- c) 32
- d) 108

coaching center



24. In the given figure, the areas (in square units) of some triangles are indicated. Based on the data find the ratio of the area $\triangle AOE$ and $\triangle FOC$.

दिए गए चित्र में कुछ त्रिभुजों के क्षेत्रफल (वर्ग इकाई में) दर्शाए गए हैं। इस जानकारी के आधार पर $\triangle AOE$ और $\triangle FOC$ के क्षेत्रफल का अनुपात बताएं.

- a) 2:1
- b) 3:2
- c) 1:2
- d) 2:3

coaching center

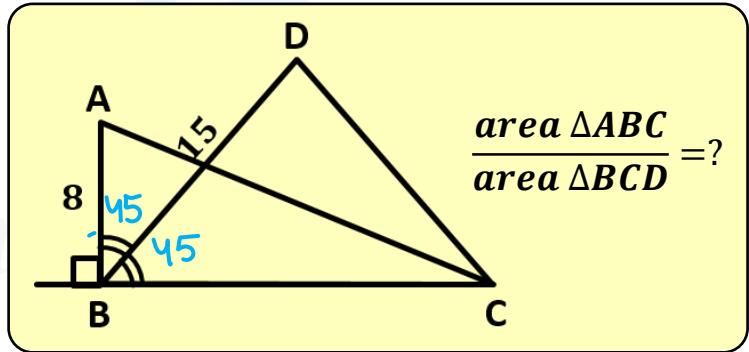
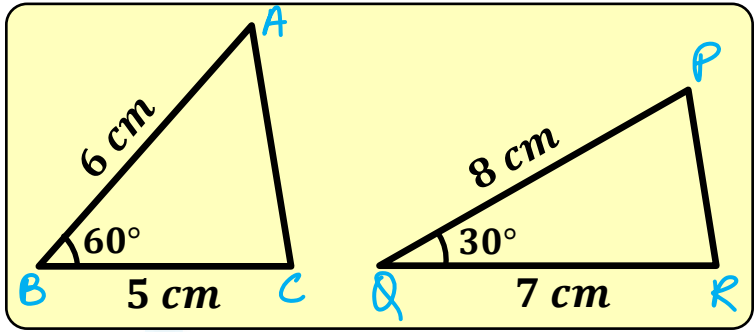
Ratio of areas of the triangles:

$$\frac{\Delta ABC}{\Delta PQR} = \frac{\frac{1}{2} \times 5 \times 6 \times \sin 60}{\frac{1}{2} \times 7 \times 8 \times \sin 30}$$

$$= \frac{5 \times \cancel{6}^3 \times \sqrt{3} \times \cancel{2}}{7 \times \cancel{8}^4 \times \cancel{2} \times 1}$$

$$= \frac{15\sqrt{3}}{28}$$

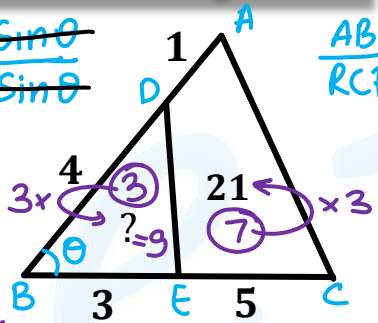
$$\frac{\cancel{BC} \times 8 \times \sin 90}{\cancel{BC} \times 15 \times \sin 45} = \frac{8 \times \sqrt{2}}{15 \times 1}$$



Find the area of the asked triangles:

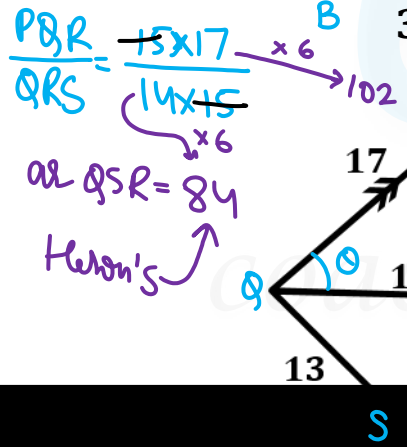
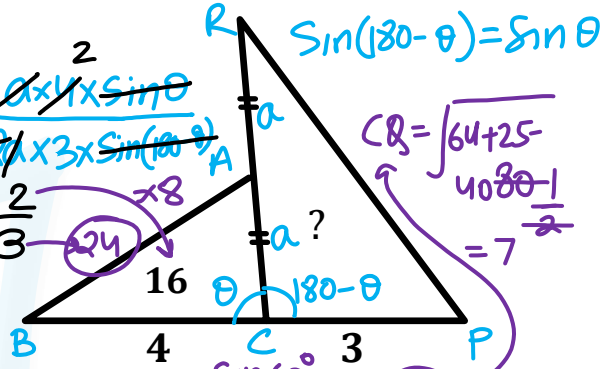
$$\frac{\Delta DBE}{\Delta ABC} = \frac{3 \times 4 \times \sin \theta}{8 \times 5 \times \sin \theta}$$

$$= \frac{3}{10}$$



$$\frac{ABC}{RCP} = \frac{a \times 1 \times \sin \theta}{2 \times 3 \times \sin(180-\theta)}$$

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



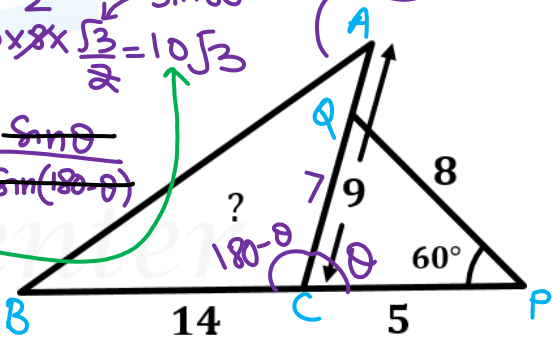
$$\frac{PQR}{QRS} = \frac{15 \times 17}{14 \times 15}$$

$$\text{al } QSR = 84$$

Heron's

$$\frac{PQC}{ABC} = \frac{5 \times 7 \times \sin \theta}{14 \times 7 \times \sin(180-\theta)}$$

$$= \frac{5}{14}$$

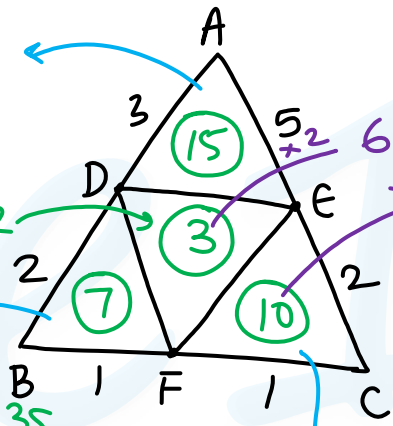


$$\textcircled{15} = 35 \times \frac{3}{7} = \frac{3 \times 5}{5 \times 7}$$

Let
 $\Delta ABC = \textcircled{35}$ - 32

$$\frac{2 \times 1}{5 \times 2} = \frac{1}{5} \times 35$$

$$\frac{1 \times 2}{2 \times 7} = \frac{2}{7} \times 35$$



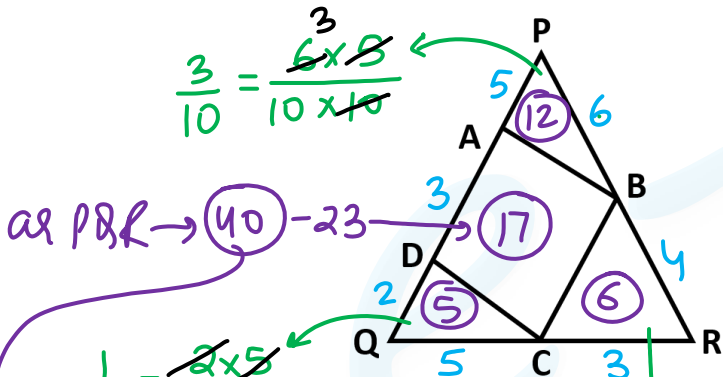
1. In ΔABC , points D, E and F divide sides AB, AC and BC respectively in ratios 3:2, 5:2 and 1:1. If area of $\Delta EFC = 20 \text{ cm}^2$ then the area of ΔDEF is

ΔABC में बिंदु D, E और F भुजाओं AB, AC और BC को क्रमशः 3:2, 5:2 और 1:1 में विभाजित करते हैं. अगर ΔEFC का क्षेत्रफल 20 cm^2 है तो ΔDEF का क्षेत्रफल बताइए.

- a) 28
- b) 32
- c) 40

b) 32
~~c) 6~~

coaching center

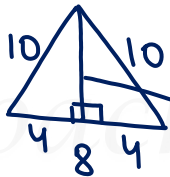


or $PQR \rightarrow 40 - 23$

$$\frac{1}{8} = \frac{2 \times 5}{10 \times 8}$$

$$= 4 \times 2\sqrt{21}$$

$$= 8\sqrt{21}$$



$$\frac{3}{20} = \frac{3 \times 4}{10 \times 8}$$

$$\frac{8\sqrt{21} \times 17}{405}$$

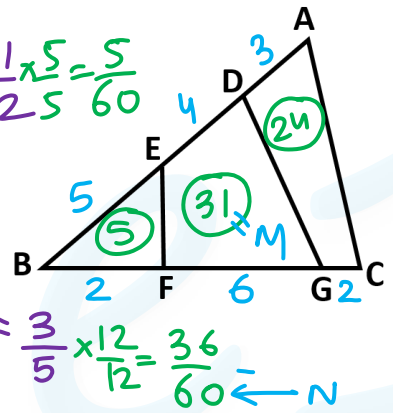
2. In the given figure, PQR is a triangle and quadrilateral $ABCD$ is inscribed in it. If $QD = 2\text{ cm}$, $QC = 5\text{ cm}$, $CR = 3\text{ cm}$, $BR = 4\text{ cm}$, $PB = 6\text{ cm}$, $PA = 5\text{ cm}$ and $AD = 3\text{ cm}$ What is the area (in cm^2) of the quadrilateral $ABCD$?

दी गए आकृति में, PQR एक त्रिभुज है तथा चतुर्भुज $ABCD$ उसमें अंकित किया गया है। $QD = 2\text{ cm}$, $QC = 5\text{ cm}$, $CR = 3\text{ cm}$, $BR = 4\text{ cm}$, $PB = 6\text{ cm}$, $PA = 5\text{ cm}$ तथा $AD = 3\text{ cm}$ है, चतुर्भुज $ABCD$ का क्षेत्रफल (cm^2 में) क्या है?

- a) $\frac{23\sqrt{21}}{4}$
- b) $\frac{15\sqrt{21}}{4}$
- c) $\frac{17\sqrt{21}}{5}$
- d) $\frac{23\sqrt{21}}{5}$

$$\frac{BEF}{ABC} = \frac{\cancel{5 \times 2}}{\cancel{12 \times 10}} = \frac{1 \times 5}{12 \times 5} = \frac{5}{60}$$

$$\frac{BGD}{ABC} = \frac{\cancel{3 \times 2}}{\cancel{12 \times 10}} = \frac{3}{5} \times \frac{2}{12} = \frac{3 \times 2}{5 \times 12} = \frac{6}{60}$$



3. In the given figure, if $AD = 3, DE = 4, AB = 12, BF = 2, FG = 6, BC = 10$ then the value of $\frac{M}{N}$ is: (If M is the area of the quadrilateral FGDE and N is the area of the triangle ABC.)

दी गई आकृति में यदि $AD = 3, DE = 4, AB = 12, BF = 2, FG = 6, BC = 10$ तो, $\frac{M}{N}$ का मान है: (यदि M चतुर्भुज FGDE का क्षेत्रफल है और N त्रिभुज ABC का क्षेत्रफल है)

- a) $\frac{31}{60}$
- b) $\frac{1}{2}$
- c) $\frac{25}{49}$
- d) $\frac{1}{3}$

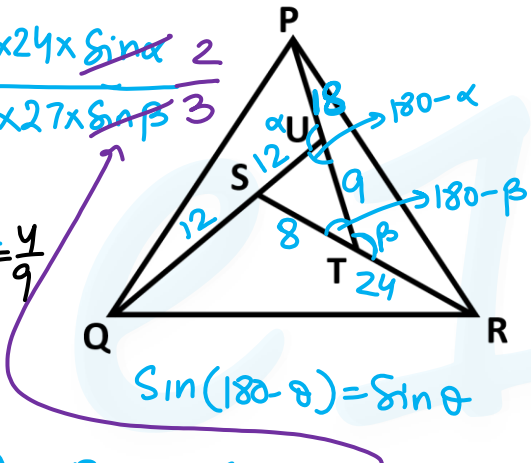
coaching center

$$\frac{PQU}{PTR} = \frac{\frac{1}{2} \times 18 \times 24 \times \sin \alpha}{\frac{1}{2} \times 24 \times 27 \times \sin \beta}$$

$$= \frac{18 \times 24 \times 2}{24 \times 27 \times 3} = \frac{4}{9}$$

In ΔSUT ,

$$\frac{\sin(180-\alpha)}{\sin(180-\beta)} = \frac{8}{12} \Rightarrow \frac{\sin \alpha}{\sin \beta} = \frac{2}{3}$$

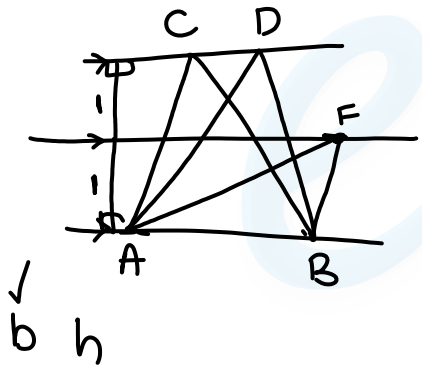


4. In the given figure, in triangle STU , $ST = 8 \text{ cm}$, $TU = 9 \text{ cm}$ and $SU = 12 \text{ cm}$, $QU = 24 \text{ cm}$, $SR = 32 \text{ cm}$ and $PT = 27 \text{ cm}$. What is the ratio of the area of triangle PQU and area of triangle PTR ?

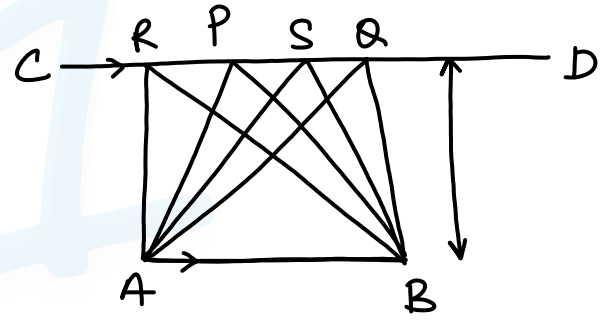
दी गई आकृति में त्रिभुज STU में $ST = 8 \text{ cm}$, $TU = 9 \text{ cm}$ तथा $SU = 12 \text{ cm}$ है। $QU = 24 \text{ cm}$, $SR = 32 \text{ cm}$ तथा $PT = 27 \text{ cm}$ है त्रिभुज PQU के क्षेत्रफल तथा त्रिभुज PTR के क्षेत्रफल से क्या अनुपात है?

- a) 1 : 1
- ~~b) 4 : 9~~
- c) 1 : 4
- d) 5 : 2

Figures between same parallel lines:



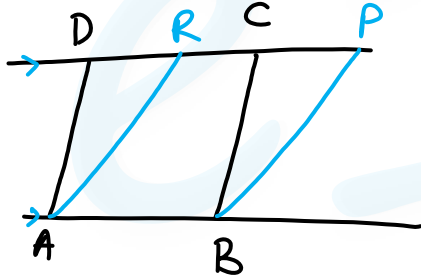
$$\text{area} = \left(\frac{1}{2}\right) \times \underline{b} \times \underline{h}$$



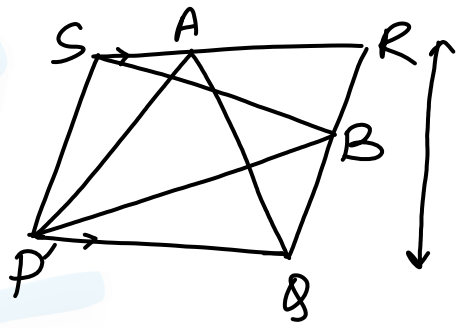
$$\text{ar } ABP = \text{ar } ABQ = \text{ar } ABR = \text{ar } ABS$$

coaching center

||gm ABCD = ||gm ABPR



area = $\frac{1}{2} \times \text{base} \times \text{height}$

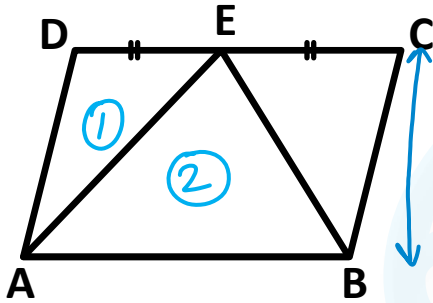


PAO POB
 PORS

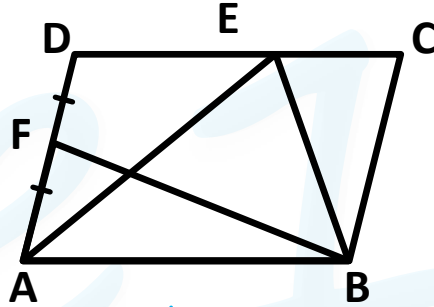
$\frac{1}{2} \times \cancel{b} \times \cancel{h} : \cancel{b} \times \cancel{h}$

coaching center

If ABCD is a parallelogram, find the ratio of area of triangles asked:

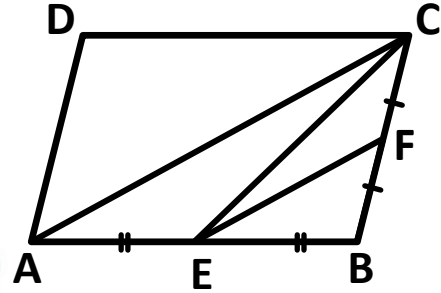


$$\frac{\text{ar } ABE}{\text{ar } ADE} = \frac{b \times h}{1 \times 1} = \frac{2 \times 1}{1 \times 1}$$



base same

$$\frac{\text{ar } ABF}{\text{ar } ABE} = \frac{1}{2}$$



$$\frac{\text{ar } AEC}{\text{ar } EBF} = \frac{2}{1}$$

coaching center