

AC وتر: $9x^2 + 9x^2 = 18x^2$

BE وتر: $x^2 + 9x^2 = 10x^2 \rightarrow \sqrt{10}x$

$\frac{EF}{AF} = \frac{\frac{\sqrt{10}}{3}x}{\sqrt{2}x} = \frac{\sqrt{5}}{3}$ ✓

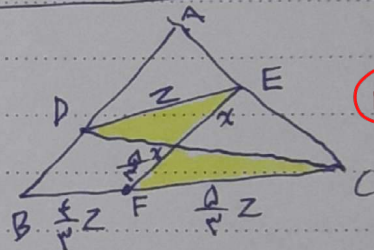
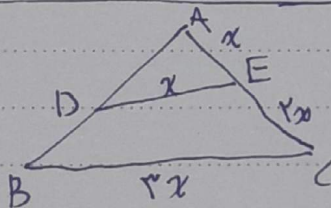
$\frac{\text{نسبت کوچک}}{\text{نسبت بزرگ}} = \frac{A_{\triangle ADE}}{A_{\triangle ABC}} \Rightarrow \frac{2}{x+1} = \frac{x}{14} \Rightarrow$

$x^2 + x = 28 \rightarrow x^2 + x - 28 = 0 \rightarrow (x+7)(x-4) = 0$ غرض 4 ✓

ضلع می تواند عدد منفی نباشد پس جواب می شود 4

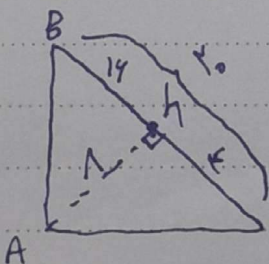
$y = \frac{4}{3}x$

$1,2 \times \frac{4}{3} = 2$



$\frac{4}{3}z = 2 \rightarrow z = \frac{3}{2}$

$3z = 3 \times \frac{3}{2} = \frac{9}{2} \rightarrow 4,5 \checkmark$



$AB^2 = BH \times AC$

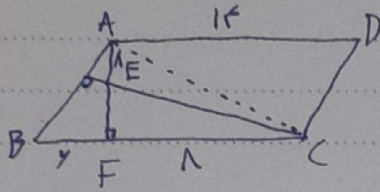
$(AB)^2 = h \times 14 \rightarrow Ah = 14$

$AC^2 = CH \times CB \rightarrow AC^2 = h \times 20 \rightarrow AC = \sqrt{10}$

$(AB)^2 = BH \times BC \rightarrow AB^2 = 14 \times 20 \rightarrow 2\sqrt{10}$

$\frac{AB}{AC} = \frac{2\sqrt{10}}{\sqrt{10}} = 2$ ✓

$\frac{AC}{AB} = \frac{\sqrt{10}}{2\sqrt{10}} = \frac{1}{2}$ ✓



$\triangle ABC$ (مثلث قائم)

$$(AF)^2 = BF \times FC$$

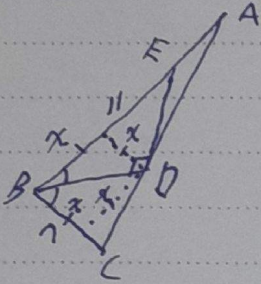
$$(AF)^2 = 4 \times 10 \rightarrow AF = \sqrt{40}$$

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مساوی
الاعمال

$$AD = BF + FC \rightarrow 14 = 4 + FC \rightarrow FC = 10 \checkmark$$



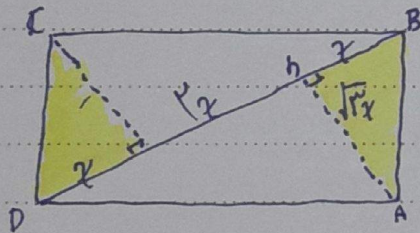
$$\frac{11 + AE - x}{11 + AE} = \frac{x}{10} \rightarrow 11 + 10(AE) = 11x + (AE)x$$

$$- 10x$$

$$\frac{11}{10} = \frac{x}{10} \rightarrow x = 11$$

$$11 + 10 - x(AE) = 19x \rightarrow 11 + \frac{10}{x}(AE) = \frac{19 \times 11}{x}$$

$$x^2 = x(11 - x) \rightarrow \sqrt{11x - x^2} = x \rightarrow x^2 = 11x - x^2 \rightarrow 2x^2 = 11x \rightarrow x = \frac{11}{2}$$



$$(Ah)^2 = Bh \times hD$$

$$(Ah)^2 = x \times 10x \rightarrow \sqrt{10}x$$

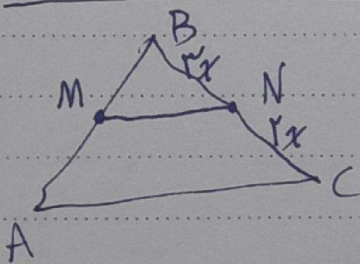
$$S_{\triangle ABD} = \frac{\sqrt{10}x \times 10x}{2} = 5\sqrt{10}x^2 \rightarrow \frac{1}{2} \times \sqrt{10}x^2 \times 10 = 5\sqrt{10}x^2$$

مساحت $\triangle AHB \Rightarrow \frac{\sqrt{10}x \times x}{2} = \frac{\sqrt{10}}{2}x^2$

$$\frac{5\sqrt{10}x^2}{\frac{\sqrt{10}}{2}x^2} = 10 \checkmark$$

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$$\frac{S_{\triangle ABC}}{S_{\triangle BMN}} = 25$$

$$\frac{d}{r} = \frac{9}{4}$$

مساحت: نسبت اضلاع ضرب در هم

$$\frac{BN}{BC} = \frac{d}{r}$$

$$\frac{BC}{BN} \times \frac{BA}{BM} = 25 \rightarrow \frac{10}{d} \times \frac{BA}{BM} = 25 \rightarrow \frac{BA}{BM} = \frac{9}{4}$$

$$(BM \rightarrow 4x) \Rightarrow BA \rightarrow 9x \Rightarrow (AM \rightarrow 5x)$$

$$\frac{BM}{AM} = \frac{4x}{5x} = \frac{4}{5} \checkmark$$

$$\frac{1}{2} \times \frac{d}{r}$$

30

