نام و نام خانوادگی ...... پاسخنامه تشریحی تکلیف شماره ۲۱ کلاس B 14

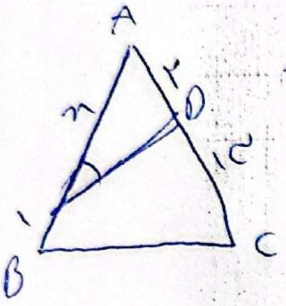
۱ (۲)

$AC = AF + CF = AF + 3AF = 4AF \Rightarrow AF = \frac{CF}{3} \Rightarrow \frac{AE}{CB} = \frac{EF}{BF} = \frac{1}{2}$

$AF = \frac{AC}{4} = \frac{2x\sqrt{2}}{4} \Rightarrow \frac{EF}{AF} = \frac{BC}{AB}, \frac{EF}{AF} = \frac{AE}{BC}, \frac{EF}{AF} = \frac{x}{2x} = \frac{1}{2}$

$\frac{\sqrt{5}}{2} = \boxed{\frac{\sqrt{5}}{2}}$ ✓

۲ (۲)



$\frac{AE}{AC} = \frac{AD}{AB} = \frac{ED}{BC}$

$x^2 + x = 20 \Rightarrow x^2 + x - 20 = 0$

4, −5 → (5) → قبول ✓

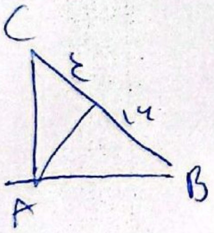
۳ (۰)

$y = \frac{5}{2}x$

$\frac{x}{\frac{5}{2}x} = \frac{2}{5} \Rightarrow BC = 4$

$\frac{5}{2} \times \frac{12}{10} = 3$

۴ (۱٫۷۵)



$AB^2 = 16 \times 20 = 320 \Rightarrow AB = \sqrt{320}$ ✓

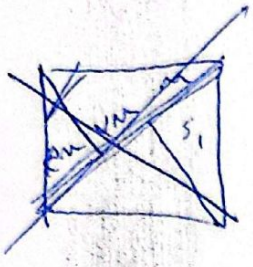
$AC^2 = 4 \times 20 = 80 \Rightarrow AC = \sqrt{80}$

نسبت → 2

۵ (۲)

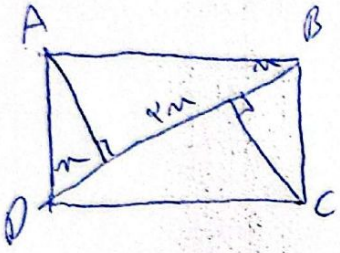
$\frac{BO}{BF} = \frac{OC}{AF} = \frac{BC}{AB} \Rightarrow EF = 4 \Rightarrow AF = 12$ ✓

6, 8+x, 16



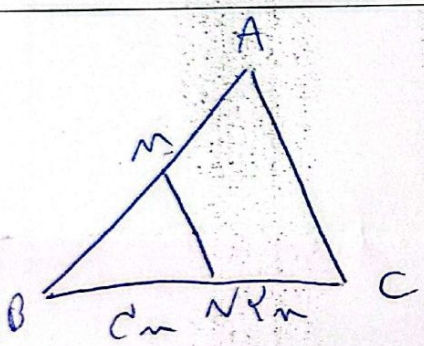
$\frac{4}{6} = \frac{AE}{EB} = \frac{AE}{11} \rightarrow \frac{CE}{6} = 4.4$ ✓

۶ (۲)



۸ برابر راه حل؟!

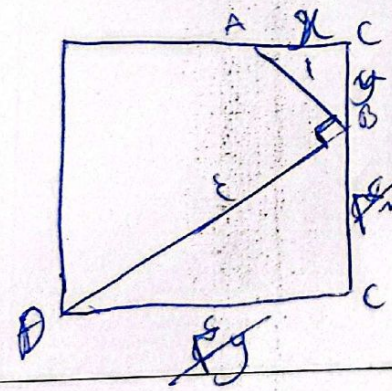
۷ (۱٫۲۵)



$\frac{S_{\triangle BMN}}{S_{\triangle ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{6}{10} = \frac{1}{5}$

$\frac{BM}{AB} = \frac{5}{9}$ ✓ $\quad \frac{BM}{AM} = \frac{5}{4}$

۸ (۲)



$\triangle ABC \cong \triangle BCD \rightarrow$ باستخ

$x = \frac{6}{4}y$

$9y^2 + 16y^2 = 16 \Rightarrow 25y^2 = 16 \Rightarrow y = \frac{4}{5} \Rightarrow S = \frac{256}{25}$ ✓

۹ (۲)

$\frac{BD}{FD} =$

۱۰ (۵)

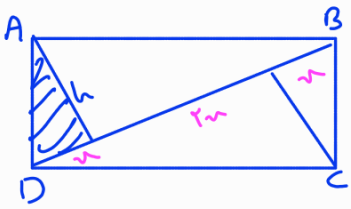
۸-

$\hat{ABD} = h' = n \times 3n \rightarrow h = \sqrt{3}n$

$S_{\text{هاشور خورده}} = \frac{hn}{2} = \frac{\sqrt{3}n^2}{2}$

$S_{\square} = 2S_{ABD} = 2 \times \frac{\sqrt{3}n \times 4n}{2} = 4\sqrt{3}n^2$ (ارتفاع، قاعده)

$\frac{4\sqrt{3}n^2}{\frac{\sqrt{3}}{2}n^2} = \boxed{8}$



۱۰-

محل برخورد میانه‌ها $G \rightarrow BG = 2n \quad GD = n \rightarrow BD = 3n$

از A به G وصل کنیم، GD و AE میانه‌های مثلث AGC هستند:

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

$FD = \frac{1}{3}n$

$\Rightarrow \frac{BD}{FD} = \frac{3n}{\frac{1}{3}n} = \boxed{9}$

۳-

$DE \parallel BC \xrightarrow{\text{جزء به کل}} \frac{AE}{AC} = \frac{DE}{BC} \rightarrow \frac{n}{3n} = \frac{DE}{BC} \rightarrow BC = 3DE$

$1,2y = 2n$

$\hat{D} = \hat{C}$, $\hat{E} = \hat{F}$ $\rightarrow DHE \sim CHF \rightarrow \frac{EH}{FH} = \frac{DE}{CF} \rightarrow CF = \frac{5}{3}DE$

$\frac{n}{\frac{5}{3}n} = y$

$BC = BF + FC \rightarrow 3DE = 3 + \frac{5}{3}DE \rightarrow DE = \frac{9}{4} \quad BC = \boxed{\frac{27}{4}}$