

$$\rightarrow \frac{BE}{AC} = \frac{EF}{AF} \rightarrow BE = \sqrt{(3x)^2 + (x^2)} = x\sqrt{10}$$

$$AC = \sqrt{(3x)^2 + (3x)^2} = 3x\sqrt{2}$$

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

۱

$$\frac{AD}{AB} = \frac{AE}{AC} \rightarrow \frac{2}{x+1} = \frac{x}{15} \quad x^2 + x - 30 = 0 \quad (x+6)(x-5)$$

$$x = -6 \text{ یا } x = 5$$

$$\boxed{x = 5}$$

۲

$$3y = 5x \rightarrow \frac{x}{y} = \frac{3}{5}$$

$$\frac{EH}{FH} = \frac{x}{y} = \frac{3}{5} \rightarrow \frac{DE}{FC} = \frac{3}{5}$$

$$\frac{AE}{AC} = \frac{x}{x + 1.2y} \Rightarrow \frac{1}{3} \rightarrow \frac{DE}{BC} = \frac{1}{3}$$

$$BC = 9z \quad 9 \times \frac{3}{5} = \boxed{\frac{27}{5} = 5.4}$$

$$BF = 9z - 5z = 4z \rightarrow 4z = 3 \quad z = \frac{3}{4}$$

۳

$$\left. \begin{array}{l} AB = 20 \\ AH = 4 \end{array} \right\} BH = 20 - 4 = 16$$

نسبت اضلاع متساوی

$$AC^2 = AH \times AB \quad 4 \times 20 = 80 \quad AC = \sqrt{80} = 4\sqrt{5}$$

$$BC^2 = BH \times AB \quad 16 \times 20 = 320 \quad BC = \sqrt{320} = 8\sqrt{5}$$

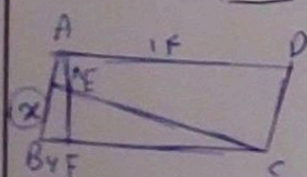
$$\frac{AC}{BC} = \frac{4\sqrt{5}}{8\sqrt{5}} = \boxed{\frac{1}{2}}$$

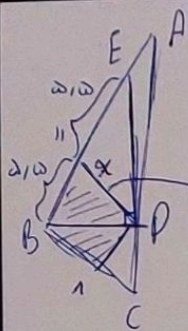
۴

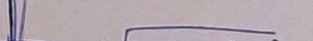
$$BAF \cong ECF \quad \frac{BF}{EF} = \frac{AF}{CF} \quad \frac{4}{x} = \frac{1+x}{1} \quad x(x+1) = 4 \quad x = 1$$

$$AF = 1 + 1 = \boxed{2}$$

۵





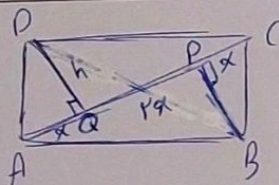


$$\sqrt{\omega, \omega \times \omega, \omega} = \omega, \omega$$

$$\frac{AE + \frac{EB}{r}}{AE + EB} = \frac{x}{BC} \rightarrow \frac{AE + \omega, \omega}{AE + 11} = \frac{\omega, \omega}{1}$$

$$14AE - 11AE = 121 - 111$$

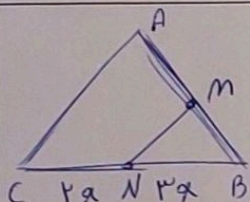
$$\omega AE = 100 \quad AE = \left[\frac{100}{\omega} \right]$$



$$h^r = 1^w \alpha \times \alpha = \alpha \sqrt{1^w}$$

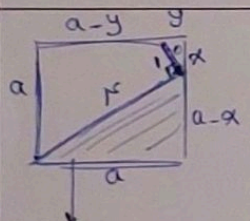
$$S_{\text{chemo}} = \gamma \times S_{ABC} \rightarrow \gamma \times \frac{1}{\gamma} \times \cancel{\gamma} \times \gamma \times f_{\alpha} = \gamma \alpha \sqrt{\gamma}$$

$$\underbrace{S_{\text{مستوى كوكبي}}^c}_{S_{APQ}} = \frac{1}{r} \times \cancel{R} \times \cancel{R} \propto \frac{R^2 \sqrt{\mu}}{r}$$



$$\frac{S_{ABC}}{S_{BMN}} = \frac{BA \times BC}{BM \times BN} = \frac{BA}{BM} \times \frac{\omega}{\nu} = \nu$$

$$\frac{BA}{BM} = \frac{q}{\omega} \quad \frac{AM}{BM} = \frac{r}{\omega} \rightarrow \frac{BM}{AM} = \boxed{\frac{\omega}{r}}$$



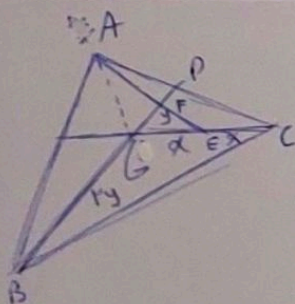
$$\rightarrow \frac{y}{a-x} = \frac{x}{a} = \frac{1}{K} \rightarrow Kx = a$$

$$\rightarrow f_y = a - x \Rightarrow a = f_y + x \quad \left\{ \begin{array}{l} f_x = f_y + x \\ f_x = f_y \end{array} \right.$$

$$\frac{x}{y} = \frac{x'}{y'}$$

$$\frac{(a-x)^r}{r \cdot x} + (a)^r = 14 \rightarrow 14x^r + 9x^r = 14 \quad x = \frac{r}{\omega} \rightarrow r \cdot x \frac{r}{\omega} = \frac{14}{\omega} = a$$

$$\text{و } \rho_{\text{فج}} = \left(\frac{1}{\rho_{\text{فج}}} \right)^r = a^r = \left(\frac{14}{\omega} \right)^r = \sqrt{\frac{r \times 4}{2\omega}} = 10,215$$



$$GE = EC = x$$

$$BD \text{ line} \rightarrow \frac{BG}{GP} = Y \quad \begin{matrix} BG = 4y \\ GP = y \end{matrix}$$

$$AGC \rightarrow AE, GP \xrightarrow{\text{iso}} GF = \frac{Y}{\mu} Y \quad FD = \frac{1}{\mu} Y$$

$$\frac{BD}{FD} = \frac{2y + y}{\frac{1}{2}y} = \boxed{9}$$