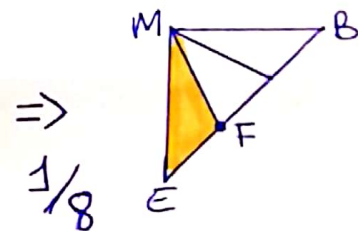
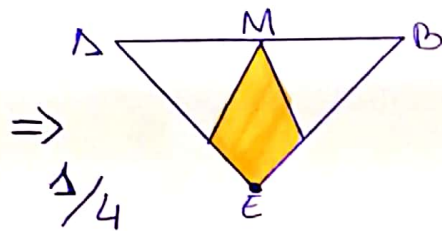
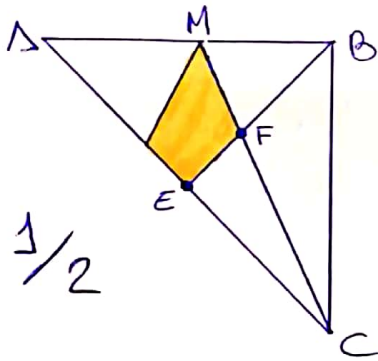
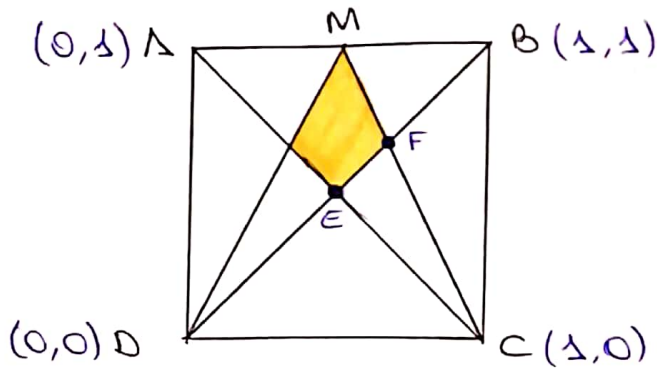


→ Which fraction of the total area is shaded?



$$\vec{DB} = (1, 1) \rightarrow r_{DB}: \frac{x}{1} = \frac{y}{1} \rightarrow x = y$$

$$\vec{AB} = (1, 0) \rightarrow P_{M, \vec{AB}} = M = \left(\frac{1}{2}, \frac{1}{2}\right)$$

$$\vec{CM} = \left(-\frac{1}{2}, 1\right) \rightarrow r_{CM} = \frac{x - \frac{1}{2}}{-\frac{1}{2}} = \frac{y}{1} \rightarrow \frac{2x - 2}{-1} = y \rightarrow$$

$$\rightarrow 2x + y - 2 = 0 \xrightarrow{x=y} 2y + y - 2 = 0 \rightarrow y = \frac{2}{3} = x \rightarrow F\left(\frac{2}{3}, \frac{2}{3}\right)$$

$$P_{M, \vec{DB}} = E = \left(\frac{1}{2}, \frac{1}{2}\right)$$

$$d(E, F) = |\vec{EF}| = \sqrt{\left(\frac{1}{6}\right)^2 + \left(\frac{1}{6}\right)^2} = \frac{\sqrt{2}}{6} u$$

$$d(E, B) = |\vec{EB}| = \sqrt{\left(\frac{1}{2}\right)^2 + \left(\frac{1}{2}\right)^2} = \frac{\sqrt{2}}{2} u \text{ (semi-diagonal).}$$

$$\Delta_{E, F, M} = x \Delta_{E, B, M} \rightarrow x = \frac{1}{3}$$

$$2\left(\frac{1}{3} \text{ of } \frac{1}{8}\right) = \frac{2}{24} = \frac{1}{12}$$

Solution: The fraction shaded is $\frac{1}{12}$ of the total area.