

36. Calcula k para que la distancia entre las rectas $5x + 12y - k = 0$ y $5x + 12y + 15 = 0$ sea 2.

$$\left. \begin{array}{l} r: 5x + 12y - k = 0 \\ s: 5x + 12y + 15 = 0 \end{array} \right\} \text{¿} k? / d(r, s) = 2$$

$$d(r, s) = \frac{|C - C'|}{\sqrt{A^2 + B^2}} \quad (\text{pues } \vec{n}_r = \vec{n}_s)$$

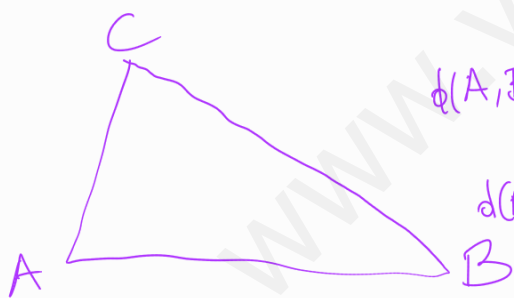
$$2 = \frac{|15 - (-k)|}{\sqrt{5^2 + 12^2}} \Rightarrow 2 = \frac{|15 + k|}{\sqrt{169}} \Rightarrow 2 = \frac{|15 + k|}{13}$$

$$2 \cdot 13 = |15 + k| \Rightarrow 26 = |15 + k| \Rightarrow \begin{cases} 15 + k = 26 & (1) \\ 15 + k = -26 & (2) \end{cases}$$

$$\begin{aligned} 15 + k = 26 &\Rightarrow k = 26 - 15 \Rightarrow k = 11 \\ 15 + k = -26 &\Rightarrow k = -26 - 15 \Rightarrow k = -41 \end{aligned}$$

37. Comprueba si los siguientes triángulos son equiláteros, isósceles o escalenos:

a) $A(-2, 1)$, $B(0, 3)$ y $C(3, 7)$



$$d(A, B) = |\vec{AB}| = |(0, 3) - (-2, 1)| = |(2, 2)|$$

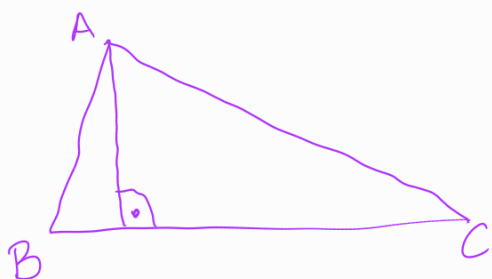
$$d(A, C) = |\vec{AC}| = |(3, 7) - (-2, 1)| = |(5, 6)|$$

$$d(B, C) = |\vec{BC}| = |(3, 7) - (0, 3)| = |(3, 4)|$$

$$\left. \begin{aligned} |\vec{AB}| &= \sqrt{2^2 + 2^2} = \sqrt{8} = 2\sqrt{2}u \\ |\vec{AC}| &= \sqrt{5^2 + 6^2} = \sqrt{61}u \\ |\vec{BC}| &= \sqrt{3^2 + 4^2} = \sqrt{25} = 5u \end{aligned} \right\} \triangle ABC \text{ NO ES EQUILÁTERO}$$

$\triangle ABC$ ES ESCALENO

39. Calcula la medida de las alturas del triángulo de vértices $A(4, 1)$, $B(-1, 3)$ y $C(0, 4)$.



¿ h_A ?

$$h_A = d(A, r_{BC})$$

$$h_B = d(B, r_{AC})$$

$$h_C = d(C, r_{AB})$$

$$h_A \left\{ \begin{array}{l} A(4, 1) \\ r_{BC} \end{array} \right.$$

$$r_{BC} \left\{ \begin{array}{l} B(-1, 3) \\ \vec{U}_{r_{BC}} = \vec{BC} = (0, 4) - (-1, 3) = (1, 1) \Rightarrow \vec{n}_{r_{BC}} = (1, -1) \end{array} \right.$$

$$r_{BC} : 1(x+1) - 1(y-3) = 0$$

$$x+1 - y+3 = 0$$

$$\underline{r_{BC} : x - y + 4 = 0}$$

$$\boxed{h_A = d(A, r_{BC}) = \frac{|4 - 1 + 4|}{\sqrt{1^2 + (-1)^2}} = \frac{|7|}{\sqrt{2}} = \frac{7}{\sqrt{2}} = \frac{7\sqrt{2}}{2} \text{ u}}$$