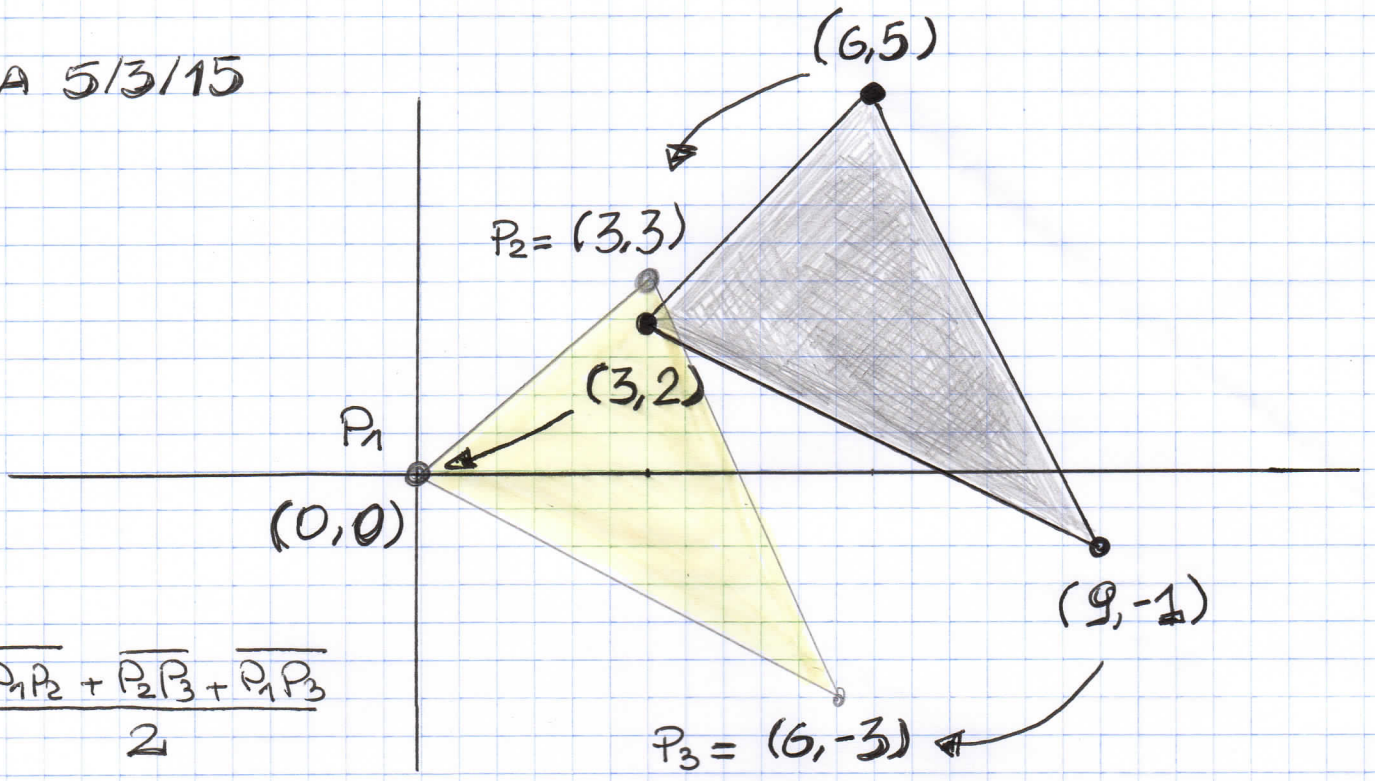
<Ex>
AULA 5/3/15



$$P = \frac{\overline{P_1P_2} + \overline{P_2P_3} + \overline{P_1P_3}}{2}$$

HERON FÓRMULA $\quad \text{Área} = \sqrt{p\,(p-\overline{P_1P_2})(p-\overline{P_2P_3})(p-\overline{P_1P_3})}$

$\overline{P_1P_2} = 3\sqrt{2} \qquad \overline{P_2P_3} = 3\sqrt{5} \qquad \overline{P_1P_3} = 3\sqrt{5}$

$$\text{Área} = \sqrt{\frac{3}{2}(\sqrt{2}+2\sqrt{5})\ \frac{3}{2}(2\sqrt{5}-\sqrt{2})\ \left(\frac{3}{2}\sqrt{2}\right)^2}$$

$$= \frac{9}{4}\sqrt{(20-2)\,2} = \frac{27}{2}$$

$$A = \frac{1}{2}\begin{vmatrix} x_2-x_1 & y_2-y_1 \\ x_3-x_1 & y_3-y_1 \end{vmatrix} \qquad A = \frac{1}{2}\begin{vmatrix} 3 & 3 \\ 6 & -3 \end{vmatrix} = \frac{27}{2}$$

$a_{12} = 1 \qquad a_{23} = -2 \qquad a_{13} = -\frac{1}{2}$

$$\tan\alpha_2 = \frac{a_{23}-a_{12}}{1+a_{12}a_{23}} = 3 \qquad \tan\alpha_1 = \frac{a_{12}-a_{13}}{1+a_{12}a_{13}} = 3$$

$$\tan\alpha_3 = \frac{a_{13}-a_{23}}{1+a_{13}a_{23}} = \frac{3}{4}$$

contudo

$$\Rightarrow \tan\alpha_1 \tan\alpha_2 \tan\alpha_3 = \tan\alpha_1 + \tan\alpha_2 + \tan\alpha_3$$

$$3 \cdot 3 \cdot \frac{3}{4} = 3 + 3 + \frac{3}{4}$$