Linear Algebra & Geometry - Equations

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Dot Product - $\boldsymbol{v} \cdot \boldsymbol{w} := \sum_{i=1}^{n} v_i w_i, \quad \boldsymbol{v}$

Norm - $\|\boldsymbol{v}\| := \sqrt{\boldsymbol{v} \cdot \boldsymbol{v}} = \sqrt{\sum_{i=1}^{n} v_i^n},$

Angle Between Vectors - $cos(\theta) = \dfrac{\boldsymbol{v} \cdot \boldsymbol{w}}{\|\boldsymbol{v}\|\|\boldsymbol{w}\|}$

Modulus of Complex Numbers - $|z| := \sqrt{x^2 + y^2} = \sqrt{\bar{z}z}$

Euler's Formula - $e^{i\theta} = cos(\theta) + i.sin(\theta)$

de Moivre's Formula - $z^n = (cos(\theta) + i.sin(\theta))^n = cos(n\theta) + i.sin(n\theta)$

Leibniz Formula - $det(A) := \sum_{\sigma \in S_n} \left(sign(\sigma). \prod_{j=1}^{n} a_{\sigma(j),j} \right)$

Cramer's Rule - $x_j = \dfrac{det(A_j)}{det(A)}$

Cross Product - $\boldsymbol{x} \times \boldsymbol{y} := \begin{vmatrix} \boldsymbol{e}_1 & \boldsymbol{e}_2 & \boldsymbol{e}_3 \\ \boldsymbol{x}_1 & \boldsymbol{x}_2 & \boldsymbol{x}_3 \\ \boldsymbol{y}_1 & \boldsymbol{y}_2 & \boldsymbol{y}_3 \end{vmatrix}$