Spotted Geometry

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1 Normal vector to a line

Definition: Normal vector Vector $\overrightarrow{v}$ is normal to d if orthogonal to any $\overrightarrow{u}$ director of line d.

Property: Normal vector and equation The vector $\overrightarrow{n}\begin{pmatrix} a \\ b \end{pmatrix}$ is normal to a line d where its cartesian equation is:

$$ax + by + c = 0$$

Property: Cartesian equation of a line A line which admits a normal vector $\overrightarrow{n}\begin{pmatrix} a \\ b \end{pmatrix}$ has a cartesian equation of the form:

$$ax + by + c = 0$$

2 Equation of a circle

Property: Cartesian Equation of a Circle A circle of center $A(a, b)$ and radius r has the form

$$(x - a)^2 + (y - b)^2 = r^2$$