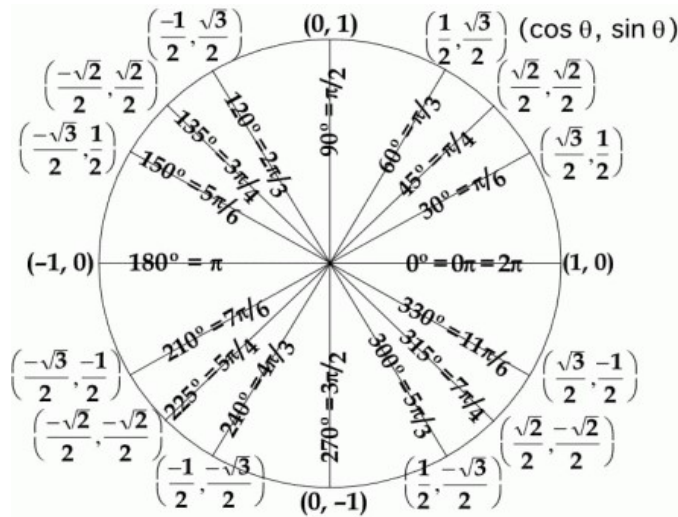


Unit Circle



Where the angle is usually represented as θ , φ , or δ

Conversions

Cartesian coordinates to polar coordinates

$$x = r \cdot \cos(\varphi)$$

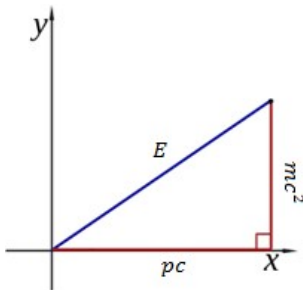
$$y = r \cdot \sin(\varphi)$$

Polar coordinates to Cartesian coordinates

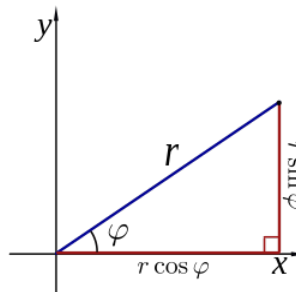
$$r = \sqrt{x^2 + y^2}$$

$$\tan(\varphi) = \frac{y}{x}, x \neq 0$$

Visual representation of polar and Cartesian relationships, Pythagorean Theorem, and application in physics.



$$E = \sqrt{(pc)^2 + (mc^2)^2}$$



$$r = \sqrt{x^2 + y^2}$$

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References - The following works were referred to during the creation of this handout:

[Wikipedia](https://en.wikipedia.org/).



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