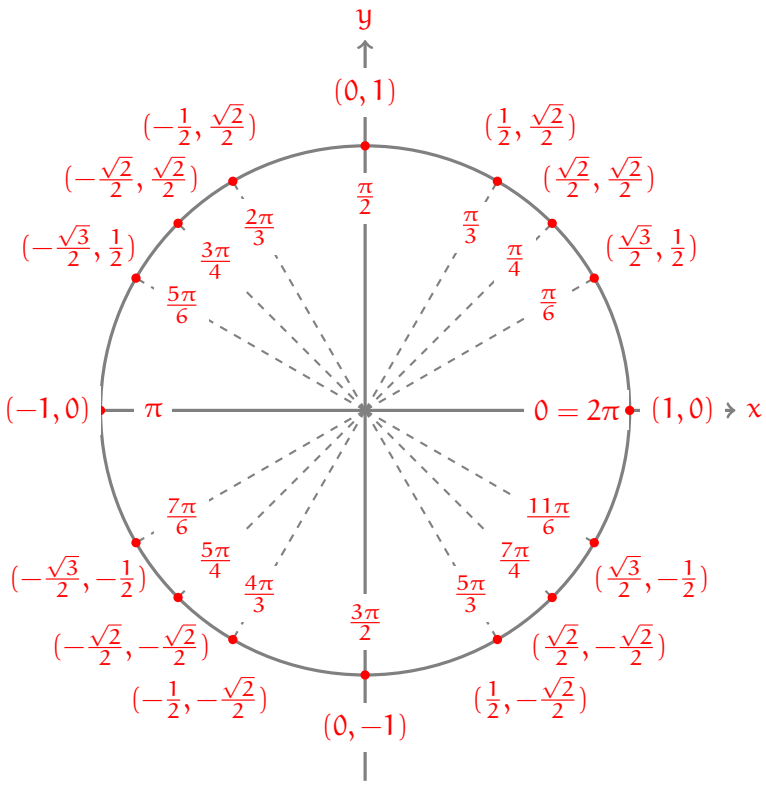

$$\mathbf{v} \cdot \mathbf{w} = \|\mathbf{v}\|\|\mathbf{w}\| \cos\theta \qquad \text{proj}_{\mathbf{v}}(\mathbf{w}) = \left(\frac{\mathbf{v} \cdot \mathbf{w}}{\mathbf{v} \cdot \mathbf{v}}\right) \mathbf{v}$$

$$\|\mathbf{v} \times \mathbf{w}\| = \|\mathbf{v}\|\|\mathbf{w}\| \sin\theta \qquad \text{comp}_{\mathbf{v}}(\mathbf{w}) = \frac{\mathbf{v} \cdot \mathbf{w}}{\|\mathbf{v}\|}$$

scalar triple product: $\mathbf{v} \cdot (\mathbf{w} \times \mathbf{r}) = \mathbf{r} \cdot (\mathbf{v} \times \mathbf{w}) = \mathbf{w} \cdot (\mathbf{r} \times \mathbf{v})$