Foundation Mathematics 1017SCG
Week 3 Summary Sheet

Radians

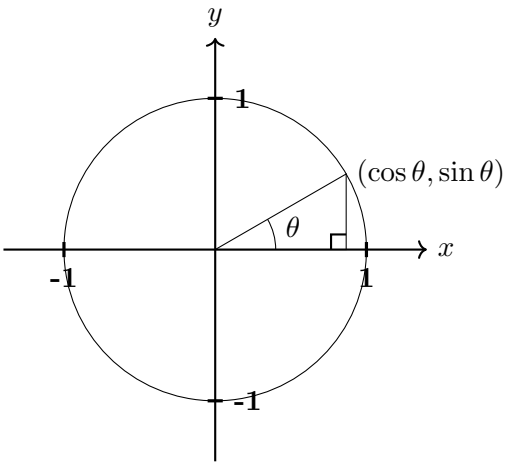
There are 2π radians in a full circle

$$2\pi \text{ radians} = 360^\circ$$

Degrees to radians: multiply by $\frac{\pi}{180}$

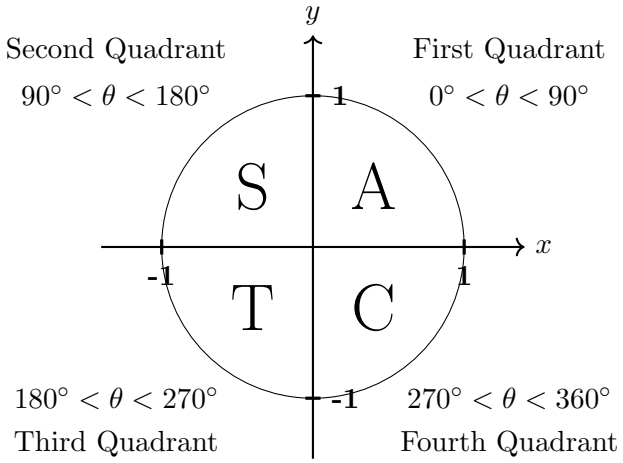
Radians to degrees: multiply by $\frac{180}{\pi}$

Unit Circle



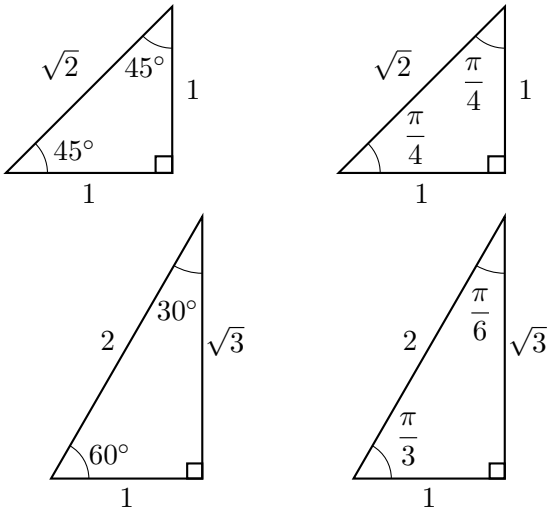
Positive angles ($\theta > 0$) are measured anti-clockwise, starting on the positive x-axis.

Negative angles ($\theta < 0$) are measured clock-wise, starting on the positive x-axis.



First Quadrant: All are positive
Second Quadrant: Only sin is positive
Third Quadrant: Only tan is positive
Fourth Quadrant: Only cos is positive

Special Triangles



Examples
Give **exact** values for the following:

$$\sin(60^\circ) = \frac{\sqrt{3}}{2} \text{ (using lower-left triangle)}$$

$$\cos(45^\circ) = \frac{1}{\sqrt{2}} \text{ (using upper-left triangle)}$$

$$\tan\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{1} = \sqrt{3} \text{ (lower-right triangle)}$$

Algebraic Expressions

$$5x^3 - 8x^2 + 6x - 4$$

- The coefficient of x^3 is 5
- The coefficient of x^2 is -8
- The coefficient of x is 6
- The constant term is -4

Like and Unlike Terms

- $6x$, $9x$, $-10x$ and x are **like terms**
- $2x^2$ and $5x$ are **unlike terms**
- $8xy$ and $6y$ are **unlike terms**

Examples If possible, simplify the following.

$$3x + 5x = 8x$$

As they are **like terms**, it could be simplified.

$$3x + 5x^2$$

Cannot be simplied further as they are **unlike terms**.