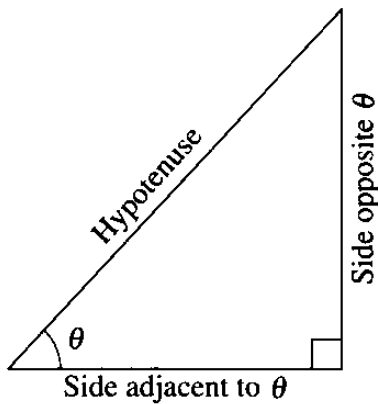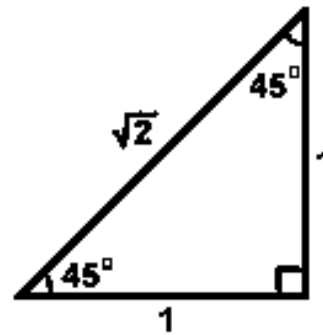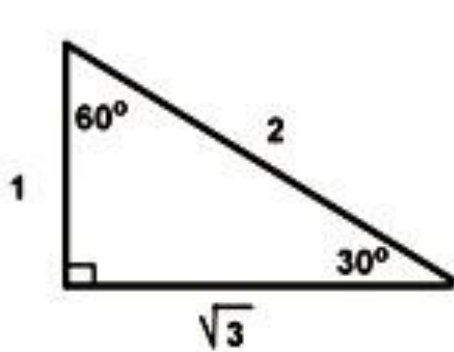# Mind the Gaps Chapter 10: Trigonometry

Special Angles and Unit Circle Information

$$sin\ \theta = \frac{opp}{hyp} \qquad cos\ \theta = \frac{adj}{hyp} \qquad tan\ \theta = \frac{opp}{adj}$$

$$csc\ \theta = \frac{hyp}{opp} \qquad sec\ \theta = \frac{hyp}{adj} \qquad cot\ \theta = \frac{adj}{opp}$$

opp = the length of the side *opposite* Ө

adj = the length of the side *adjacent* Ө

hyp = the length of the side *hypotenuse* Ө

Quadrant II | y | Quadrant I

$+ \; \sin\theta = \frac{y}{r}$

S

$- \; \cos\theta = \frac{x}{r}$

$- \; \tan\theta = \frac{y}{x}$

A_{LL}

Reference Angles
"Bow Tie"

x

$+ \; \sin\theta = \frac{y}{r}$

$+ \; \cos\theta = \frac{x}{r}$

$+ \; \tan\theta = \frac{y}{x}$

θ θ
θ θ

$- \; \sin\theta = \frac{y}{r}$

$- \; \cos\theta = \frac{x}{r}$

$+ \; \tan\theta = \frac{y}{x}$

T

Quadrant III

C

Quadrant IV

$- \; \sin\theta = \frac{y}{r}$

$+ \; \cos\theta = \frac{x}{r}$

$- \; \tan\theta = \frac{y}{x}$
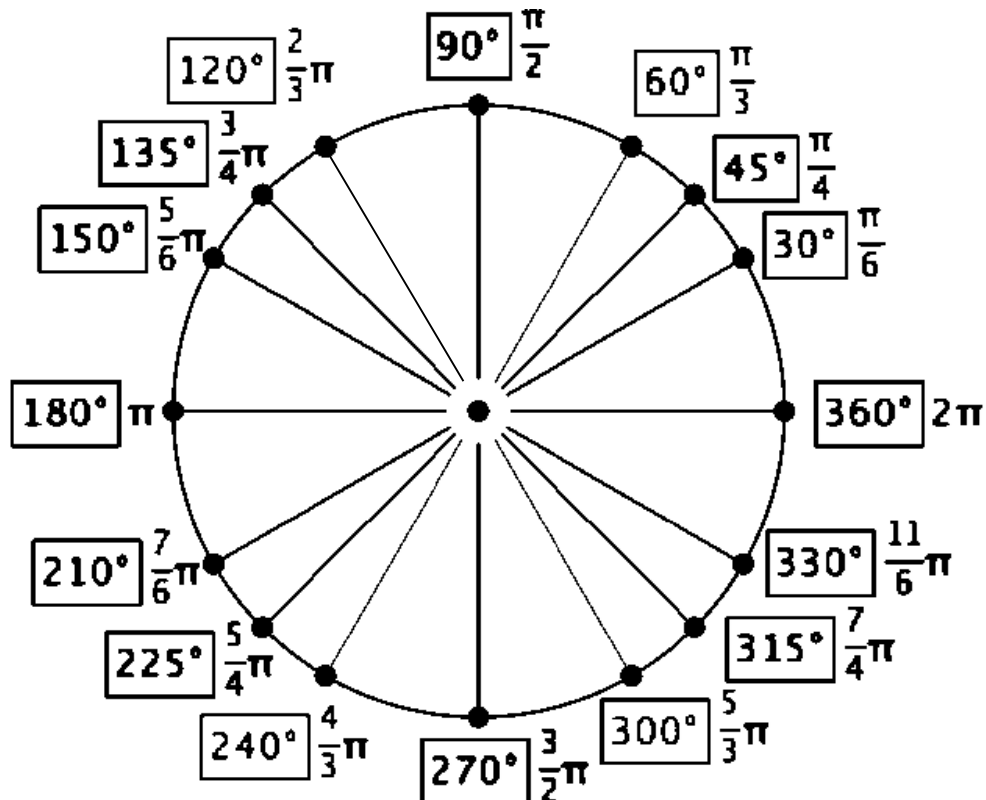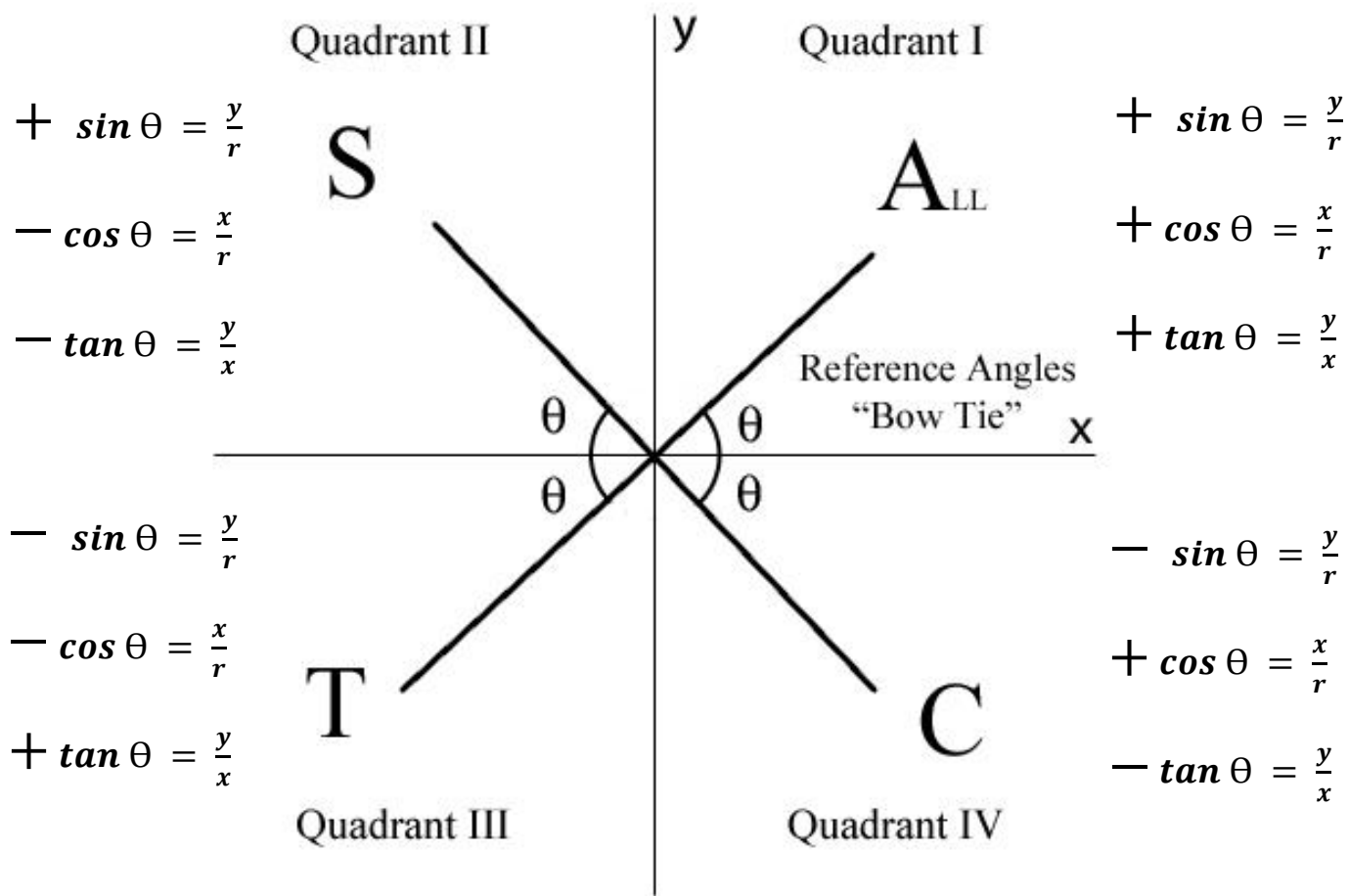
Degrees	Radians	sin θ	cos θ	tan θ	csc θ	sec θ	cot θ
0	0	0	1	0	undefined	1	undefined
30°	$\frac{\pi}{6}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$	2	$\frac{2\sqrt{3}}{3}$	$\sqrt{3}$
45°	$\frac{\pi}{4}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	$\sqrt{2}$	$\sqrt{2}$	1
60°	$\frac{\pi}{3}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{2\sqrt{3}}{3}$	2	$\frac{\sqrt{3}}{3}$
90°	$\frac{\pi}{2}$	1	0	undefined	1	undefined	0

$$360° = 2\pi \; radians$$

$$1° = \frac{\pi}{180} \; rad \qquad 1rad = \frac{180°}{\pi}$$