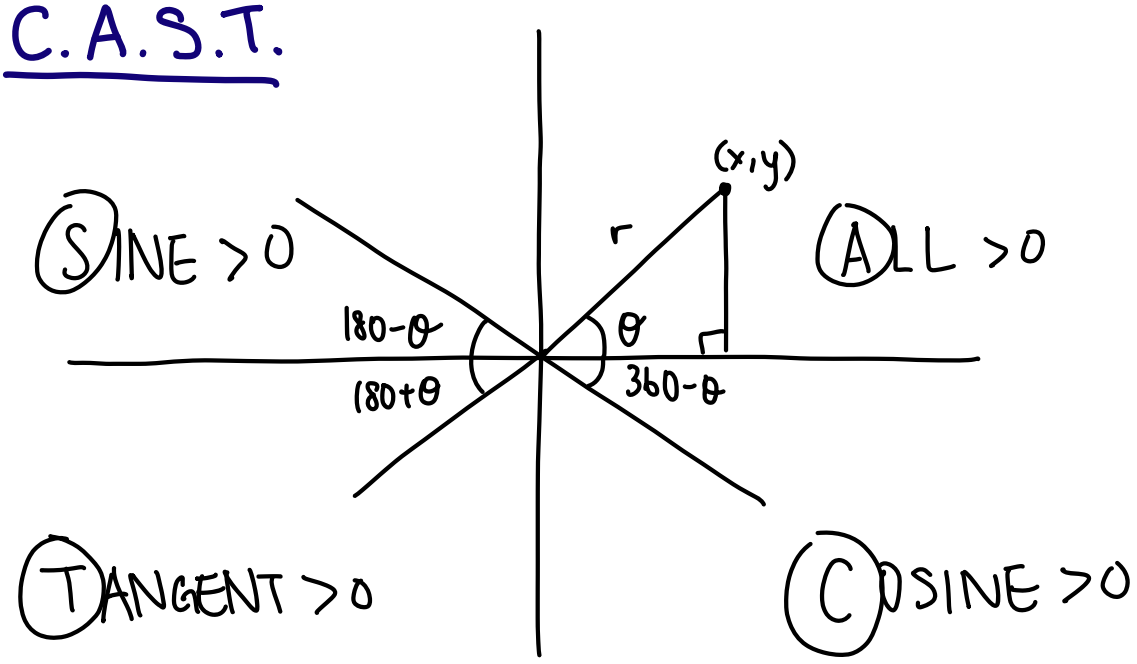
C.A.S.T.



Ex 10A (p. 207)

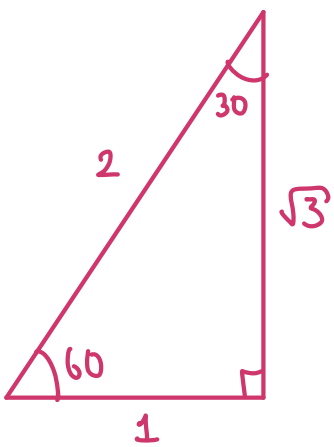
④ Express as acute ∠ trig ratios:

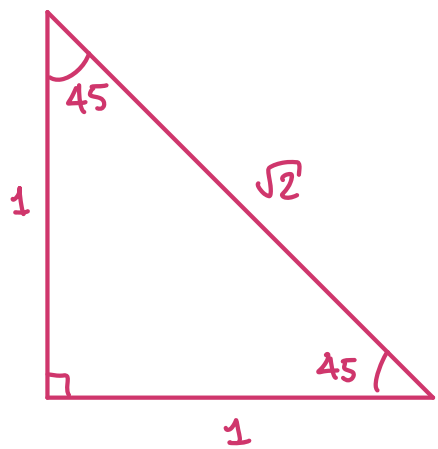
b) $\sin(-80) = -\sin 80$

f) $\cos(110) = -\cos(180-110)$

$= -\cos 70$

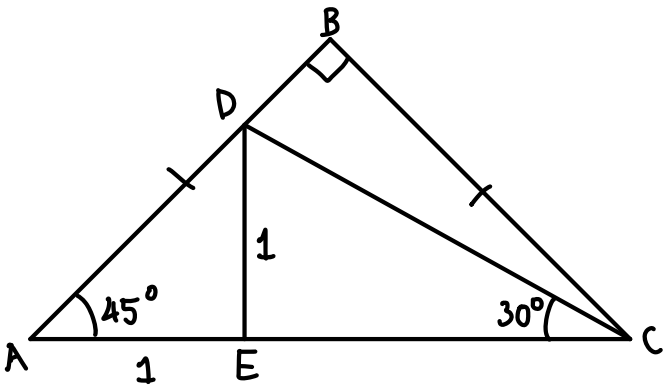
} use the rules above about graphs or the CAST thingy





use these triangles to figure out trigonometric ratios without a calculator!

EX 10B Challenge (p.209)



a) i) $|CE| = \sqrt{3}$

ii) $|DC| = 2$

iii) $|BC| = 2\cos 15 = \frac{\sqrt{6}+\sqrt{2}}{2}$

iv) $|DB| = 2\sin 15 = \frac{\sqrt{6}-\sqrt{2}}{2}$

b) $\angle BCD = 15°$

c) i) $\sin 15 = |DB| / |DC| = \frac{\sqrt{6}-\sqrt{2}}{4}$

ii) $\cos 15 = |BC| / |DC| = \frac{\sqrt{6}+\sqrt{2}}{4}$

ARCSIN? ARCCOS? ARCTAN?

$\arcsin\theta = \text{Arcsin}\theta = \sin^{-1}\theta$

$\arccos\theta = \text{Arccos}\theta = \cos^{-1}\theta$

$\arctan\theta = \text{Arctan}\theta = \tan^{-1}\theta$

} They just "undo" a trigonometric function

e.g. $\sin 30 = \frac{1}{2}$, $\arcsin(\frac{1}{2}) = \text{Arcsin}(\frac{1}{2}) = \sin^{-1}(\frac{1}{2}) = 30$

⚠ if the question specifies $0 \le \theta \le 360$, you HAVE to list all possibilities

therefore, $\sin^{-1}(\frac{1}{2}) = 30, 150$

since $\frac{S \mid A}{T \mid C}$,

write θ and $180-\theta$ (quadrants 1, 2)

But wait, there's MORE!

e.g. $\cos(3\theta) = 0.766$ $(0 \le \theta \le 360)$ } multiply range

$\cos X = 0.766$ $(0 \le X \le 1080)$ }

$X = \cos^{-1}(0.766)$

$X = 40, 320, 400, 680, 760, 1040$

$\theta = 13.3, 107, 133, 227, 253, 347$

All possible answers!