

Section 3: Trig graphs, identities and equations

Exercise

- Using the identities $\sin^2 x + \cos^2 x = 1$ and/or $\tan x = \frac{\sin x}{\cos x}$, simplify
 - $\frac{\sqrt{1-\cos^2 x}}{\tan x}$
 - $\frac{\sin x}{\sqrt{1-\sin^2 x}}$
 - $\frac{\cos^2 x}{1+\sin x}$
- Solve the following equations for $0^\circ \leq x \leq 360^\circ$.
 - $\sin x = 0.3$
 - $\tan x = 1.5$
 - $\cos x = -0.7$
 - $\sin x = -0.6$
- Find all of the values for x between 0° and 360° such that
 - $\sin x = 0.6$
 - $\cos x = 0.8$
 - $\tan x = -0.6$
 - $\cos x = -0.3$
- Without using a calculator find values for x between 0° and 360° such that
 - $\sin x = \frac{1}{\sqrt{2}}$
 - $\sin x = -\frac{1}{2}$
 - $\cos x = \frac{\sqrt{3}}{2}$
 - $\cos x = -\frac{1}{\sqrt{2}}$
- Solve the following equations for x between 0° and 360° .
 - $3 \sin x = 4 \cos x$
 - $2 \cos x = -3 \sin x$
- Solve the following equations for θ in the range from 0° to 360° .
 - $4 \cos^2 \theta = 3$
 - $2 \cos^2 \theta = \cos \theta$
 - $4 \sin \theta \cos \theta = \sin \theta$
 - $\cos^2 \theta - \cos \theta - 2 = 0$
 - $3 \sin^2 \theta + 5 \cos \theta - 1 = 0$
 - $3 \tan \theta - 2 \cos \theta = 0$
- Write down three angles that have the same tan as 132° .
- Prove that $\frac{1}{1+\sin x} + \frac{1}{1-\sin x} = \frac{2}{\cos^2 x}$.