

The trigonometric functions

The exact values

QUESTION 1 Write down the exact value of:

a $\cos \frac{\pi}{4}$

b $\sin \frac{\pi}{3}$

c $\tan \frac{\pi}{6}$

d $\cos 0$

e $\sin \frac{\pi}{4}$

f $\tan \frac{\pi}{3}$

g $\cos \frac{\pi}{6}$

h $\tan \frac{\pi}{4}$

i $\cos \frac{\pi}{3}$

j $\sin \frac{\pi}{2}$

k $\tan 0$

l $\sin \frac{\pi}{6}$

QUESTION 2 Find the exact value of:

a $\tan \frac{5\pi}{6}$

b $\sin \frac{7\pi}{2}$

c $\cos \frac{3\pi}{4}$

d $\sin \frac{2\pi}{3}$

e $\cos \frac{11\pi}{6}$

f $\tan \frac{5\pi}{4}$

g $\operatorname{cosec} \frac{\pi}{4}$

h $\cot \frac{\pi}{6}$

i $\sec \frac{4\pi}{3}$

The trigonometric functions



Trigonometric equations (1)

QUESTION 1 Find a value of θ (in radians), correct to two decimal places, if:

a $\tan \theta = 1.65$

b $\cos \theta = 0.237$

c $\sin \theta = 0.8197$

QUESTION 2 Find all values of θ , $0 \leq \theta \leq 2\pi$, for which:

a $\sin \theta = \frac{\sqrt{3}}{2}$

b $\cos \theta = \frac{1}{\sqrt{2}}$

c $\tan \theta = -1$

d $\cos \theta = -\frac{1}{2}$

e $\tan \theta = \sqrt{3}$

f $\sin \theta = -\frac{1}{\sqrt{2}}$

a $2 \cos x + \sqrt{3} = 0$

b $\sin^2 x = \frac{1}{2}$

QUESTION 2 Solve for $0 \leq x \leq 2\pi$

c $\sec \theta = \frac{\sqrt{3}}{2}$

d $\operatorname{cosec} \theta = -2$

a $\operatorname{cosec} \theta = \sqrt{2}$

b $\cot \theta = -\sqrt{3}$

QUESTION 1 Find all values of θ , $0 \leq \theta \leq 2\pi$, for which:

Trigonometric equations (2)

The trigonometric functions

The trigonometric functions



Trigonometric equations (3)

QUESTION 1 Solve for $0 \leq x \leq 2\pi$

a $\sin x = \cos x$

b $7 \sin 3x - 7 = 0$

c $\cot^2 x = 3$

d $3 \tan 2x = \sqrt{3}$

QUESTION 2 Solve for $-\pi \leq x \leq \pi$

a $\sec x + 2 = 0$

b $\sqrt{2} + 3 \sin x = 5 \sin x$

Page 62 1 a $\frac{1}{\sqrt{2}}$ b $\frac{\sqrt{3}}{2}$ c $\frac{1}{\sqrt{3}}$ d 1 e $\frac{1}{\sqrt{2}}$ f $\sqrt{3}$ g $\frac{\sqrt{3}}{2}$ h 1 i $\frac{1}{2}$ j 1 k 0 l $\frac{1}{2}$ 2 a $-\frac{1}{\sqrt{3}}$ b -1 c $-\frac{1}{\sqrt{2}}$ d $\frac{\sqrt{3}}{2}$
e $\frac{\sqrt{3}}{2}$ f 1 g $\sqrt{2}$ h $\sqrt{3}$ i -2

Page 63 1 a 1.03 b 1.33 c 0.96 2 a $\frac{\pi}{3}$ or $\frac{2\pi}{3}$ b $\frac{\pi}{4}$ or $\frac{7\pi}{4}$ c $\frac{3\pi}{4}$ or $\frac{7\pi}{4}$ d $\frac{2\pi}{3}$ or $\frac{4\pi}{3}$ e $\frac{\pi}{3}$ or $\frac{4\pi}{3}$ f $\frac{5\pi}{4}$ or $\frac{7\pi}{4}$

Page 64 1 a $\frac{\pi}{4}$ or $\frac{3\pi}{4}$ b $\frac{5\pi}{6}$ or $\frac{11\pi}{6}$ c $\frac{\pi}{6}$ or $\frac{11\pi}{6}$ d $\frac{7\pi}{6}$ or $\frac{11\pi}{6}$ 2 a $x = \frac{5\pi}{6}$ or $x = \frac{7\pi}{6}$ b $x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}$ or $\frac{7\pi}{4}$

Page 65 1 a $x = \frac{\pi}{4}$ or $\frac{5\pi}{4}$ b $x = \frac{\pi}{6}, \frac{5\pi}{6}$ or $\frac{3\pi}{2}$ c $x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}$ or $\frac{11\pi}{6}$ d $x = \frac{\pi}{12}, \frac{7\pi}{12}, \frac{13\pi}{12}$ or $\frac{19\pi}{12}$

2 a $x = -\frac{2\pi}{3}$ or $\frac{2\pi}{3}$ b $x = \frac{\pi}{4}$ or $\frac{3\pi}{4}$