Trigonometric Ratios Ex 5.2 Q33

Answer :

Given:

$\sin(A+B)=1$ ...... (1)

$\cos(A-B)=1$ ...... (2)

We know that,

$\sin 90°=1$ ...... (3)

$\cos 0°=1$ ...... (4)

Now by comparing equation (1) and (3)

We get,

$A+B=90$ ...... (5)

Now by comparing equation (2) and (4)

We get,

$A-B=0$ ...... (6)

Now to get the values of *A* and *B*, let us solve equation (5) and (6) simultaneously

Therefore by adding equation (5) and (6)

We get,

$$\begin{array}{r} A+B=90 \\ +A-B=\ \ 0 \\ \hline 2A+0=90 \end{array}$$

Therefore,

$$2A=90$$

$$\Rightarrow A=\frac{90}{2}$$

$$\Rightarrow A=45°$$

Hence $\boxed{A=45°}$

Now by subtracting equation (6) from equation (5)

We get,

$$\begin{array}{r} A+B=90 \\ -A-B=\ \ 0 \\ (-)\,(+)\quad(-) \\ \hline 0+2B=90 \end{array}$$

Therefore,

$$2B=90$$

$$\Rightarrow B=\frac{90}{2}$$

$$\Rightarrow B=45°$$

Hence $\boxed{B=45°}$

Therefore the values of *A* and *B* are as follows

$\boxed{A=45°}$ and $\boxed{B=45°}$

Trigonometric Ratios Ex 5.2 Q34

Answer :

Given:

$\tan(A-B)=\frac{1}{\sqrt{3}}$ ...... (1)

$\tan(A+B)=\sqrt{3}$ ...... (2)

We know that,

$\tan 30^\circ=\frac{1}{\sqrt{3}}$ ...... (3)

$\tan 60^\circ=\sqrt{3}$ ...... (4)

Now by comparing equation (1) and (3)

We get,

$A-B=30$ ...... (5)

Now by comparing equation (2) and (4)

We get,

$A+B=60$ ...... (6)

Now to get the values of *A* and *B*, let us solve equation (5) and (6) simultaneously

Therefore by adding equation (5) and (6)

We get,

$$\begin{array}{r} A-B=90 \\ +A+B=\ \ 0 \\ \hline 2A+0=90 \end{array}$$

Therefore,

$$2A=90$$

$$\Rightarrow \quad A=\frac{90}{2}$$

$$\Rightarrow \quad A=45^\circ$$

Hence $\boxed{A=45^\circ}$

Now by subtracting equation (5) from equation (6)

We get,

$$\begin{array}{r} A+B=60 \\ -A-B=30 \\ (-)\,(+)\quad(-) \\ \hline 0+2B=30 \end{array}$$

Therefore,

$$2B=30$$

$$\Rightarrow \quad B=\frac{30}{2}$$

$$\Rightarrow \quad B=15^\circ$$

Hence $\boxed{B=15^\circ}$

Therefore the values of *A* and *B* are as follows

$\boxed{A=45^\circ}$ and $\boxed{B=15^\circ}$

Trigonometric Ratios Ex 5.2 Q35

Answer :

Given:

$\sin(A-B)=\frac{1}{2}$ ...... (1)

$\cos(A+B)=\frac{1}{2}$ ...... (2)

We know that,

$\sin 30°=\frac{1}{2}$ ...... (3)

$\cos 60°=\frac{1}{2}$ ...... (4)

Now by comparing equation (1) and (3)

We get,

$A-B=30$ ...... (5)

Now by comparing equation (2) and (4)

We get,

$A+B=60$ ...... (6)

Now to get the values of *A* and *B*, let us solve equation (5) and (6) simultaneously

Therefore by adding equation (5) and (6)

We get,

$$\begin{array}{r} A-B=30 \\ +A+B=60 \\ \hline 2A+0=90 \end{array}$$

Therefore,

$$2A=90$$

$$\Rightarrow A=\frac{90}{2}$$

$$\Rightarrow A=45°$$

Hence $\boxed{A=45°}$

Now by subtracting equation (5) from equation (6)

We get,

$$\begin{array}{r} A+B=60 \\ -A-B=30 \\ (-)\ (+)\ \ (-) \\ \hline 0+2B=30 \end{array}$$

Therefore,

$$2B=30$$

$$\Rightarrow B=\frac{30}{2}$$

$$\Rightarrow B=15°$$

Hence $\boxed{B=15°}$

Therefore the values of *A* and *B* are as follows

$\boxed{A=45°}$ and $\boxed{B=15°}$

*********** END **********