Trigonometric Ratios Ex 5.3 Q16

Answer :

Given: $\sec 4A = \text{cosec}\left(A - 20^\circ\right)$ and $4A$ is an acute angle

We have to find θ

Now

$$\sec 4A = \text{cosec}\left(A - 20^\circ\right)$$

$$\sec 4A = \sec\left\{90^\circ - \left(A - 20^\circ\right)\right\}$$

$$\sec 4A = \sec\left(90^\circ - A + 20^\circ\right)$$

$$\sec 4A = \sec\left(110^\circ - A\right)$$

$$5A = 110^\circ$$

$$A = 22^\circ$$

Hence the value of A is $\boxed{22^\circ}$

Trigonometric Ratios Ex 5.3 Q17

Answer :

Given: $\sec 2A = \text{cosec}\left(A - 42^\circ\right)$ and $2A$ is an acute angle

We have to find θ

So we proceed as follows to calculate θ

$$\sec 2A = \text{cosec}\left(A - 42^\circ\right)$$

$$\Rightarrow \sec 2A = \sec\left\{90^\circ - \left(A - 42^\circ\right)\right\}$$

$$\Rightarrow \sec 2A = \sec\left(90^\circ - A + 42^\circ\right)$$

$$\Rightarrow \sec 2A = \sec\left(132^\circ - A\right)$$

$$\Rightarrow 3A = 132^\circ$$

$$\Rightarrow A = 44^\circ$$

Hence the value of A is $\boxed{44^\circ}$

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