



Trigonometric Ratios Ex 5.3 Q1

**Answer :**

(i) Given that  $\frac{\sin 20}{\cos 70}$

Since  $\sin(90 - \theta) = \cos \theta$

$$\Rightarrow \frac{\sin 20}{\cos 70} = \frac{\sin(90 - 70)}{\cos 70}$$

$$\Rightarrow \frac{\sin 20}{\cos 70} = \frac{\cos 70}{\cos 70}$$

$$\Rightarrow \frac{\sin 20}{\cos 70} = 1$$

Therefore  $\frac{\sin 20}{\cos 70} = \boxed{1}$

(ii) Given that  $\frac{\cos 19}{\sin 71}$

$$\Rightarrow \frac{\cos 19}{\sin 71} = \frac{\cos(90 - 71)}{\sin 71}$$

$$\Rightarrow \frac{\cos 19}{\sin 71} = \frac{\sin 71}{\sin 71}$$

$$\Rightarrow \frac{\cos 19}{\sin 71} = 1$$

Since  $\cos(90 - \theta) = \sin \theta$

$$\text{Therefore } \frac{\cos 19}{\sin 71} = \boxed{1}$$

(iii) Given that  $\frac{\sin 21}{\cos 69}$

Since  $\sin(90 - \theta) = \cos \theta$

$$\Rightarrow \frac{\sin 21}{\cos 69} = \frac{\sin(90 - 69)}{\cos 69}$$

$$\Rightarrow \frac{\sin 21}{\cos 69} = \frac{\cos 69}{\cos 69}$$

$$\Rightarrow \frac{\sin 21}{\cos 69} = \boxed{1}$$

(iv) We are given that  $\frac{\tan 10}{\cot 80}$

Since  $\tan(90 - \theta) = \cot \theta$

$$\Rightarrow \frac{\tan 10}{\cot 80} = \frac{\tan(90 - 80)}{\cot 80}$$

$$\Rightarrow \frac{\tan 10}{\cot 80} = \frac{\cot 80}{\cot 80}$$

$$\Rightarrow \frac{\tan 10}{\cot 80} = 1$$

$$\text{Therefore } \frac{\tan 10}{\cot 80} = \boxed{1}$$

(v) Given that  $\frac{\sec 11}{\operatorname{cosec} 79}$

Since  $\sec(90 - \theta) = \operatorname{cosec} \theta$

$$\Rightarrow \frac{\sec 11}{\operatorname{cosec} 79} = \frac{\sec(90 - 79)}{\operatorname{cosec} 79}$$

$$\Rightarrow \frac{\sec 11}{\operatorname{cosec} 79} = \frac{\operatorname{cosec} 79}{\operatorname{cosec} 79}$$

$$\Rightarrow \frac{\sec 11}{\operatorname{cosec} 79} = 1$$

Therefore  $\frac{\sec 11}{\operatorname{cosec} 79} = \boxed{1}$

\*\*\*\*\* END \*\*\*\*\*