

1. Find the values of:

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|---------------------------|----------------------------|---------------------------|
| (i) $\sin 53^\circ 40'$ | (ii) $\cos 36^\circ 20'$ | (iii) $\tan 19^\circ 30'$ |
| (iv) $\cot 33^\circ 50'$ | (v) $\cos 42^\circ 38'$ | (vi) $\tan 25^\circ 34'$ |
| (vii) $\sin 18^\circ 31'$ | (viii) $\cos 52^\circ 13'$ | (ix) $\cot 89^\circ 9'$ |

Solution.

From trigonometric tables or calculators, we easily have

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| (i) $\sin 53^\circ 40' = 0.8056$ | (ii) $\cos 36^\circ 20' = 0.8055$ |
| (iii) $\tan 19^\circ 30' = 0.3541$ | (iv) $\cot 33^\circ 50' = \frac{1}{\tan 33^\circ 50'} = 1.4919$ |
| (v) $\cos 42^\circ 38' = 0.7357$ | (vi) $\tan 25^\circ 34' = 0.4785$ |
| (vii) $\sin 18^\circ 31' = 0.3176$ | (viii) $\cos 52^\circ 13' = 0.6128$ |
| (ix) $\cot 89^\circ 9' = \frac{1}{\tan 89^\circ 9'} = 0.1736$ | |

2. Find θ , if:

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|------------------------------|-----------------------------|
| (i) $\sin \theta = 0.5791$ | (ii) $\cos \theta = 0.9316$ |
| (iii) $\cos \theta = 0.5257$ | (iv) $\tan \theta = 1.705$ |
| (v) $\tan \theta = 21.943$ | (vi) $\sin \theta = 0.5186$ |

Solution. From trigonometric tables or calculators, we easily have

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| (i) $\sin \theta = 0.5791 \Rightarrow \theta = \sin^{-1} 0.5791 \Rightarrow \theta = 35^\circ 23'$ |
| (ii) $\cos \theta = 0.9316 \Rightarrow \theta = \cos^{-1} 0.9316 \Rightarrow \theta = 21^\circ 19'$ |
| (iii) $\cos \theta = 0.5257 \Rightarrow \theta = \cos^{-1} 0.5257 \Rightarrow \theta = 58^\circ 17'$ |
| (iv) $\tan \theta = 1.705 \Rightarrow \theta = \tan^{-1} 1.705 \Rightarrow \theta = 59^\circ 36'$ |
| (v) $\tan \theta = 21.943 \Rightarrow \theta = \tan^{-1} 21.943 \Rightarrow \theta = 87^\circ 23'$ |
| (vi) $\sin \theta = 0.5186 \Rightarrow \theta = \sin^{-1} 0.5186 \Rightarrow \theta = 31^\circ 14'$ |