

ACHIEVERS FOUNDATION

Trigonometric Ratios

1. In each of the following one of the six trigonometric ratios is given. Find the values of the other trigonometric ratios.
(i) $\sin A = 2/3$ ii) $\cos A = 4/5$
2. In a $\triangle ABC$, right angled at B, $AB = 24$ cm, $BC = 7$ cm. Determine (i) $\sin A$, $\cos A$ (ii) $\sin C$, $\cos C$
3. Given $15 \cot A = 8$, find $\sin A$ and $\sec A$.
4. In $\triangle PQR$, right angled at Q, $PQ = 4$ cm and $RQ = 3$ cm. Find the values of $\sin P$, $\sin R$, $\sec P$ and $\sec R$.
5. If $\cot \theta = 7/8$ (i) *evaluate*: $\{(1+\sin\theta)(1-\sin\theta)\}/\{(1+\cos\theta)(1-\cos\theta)\}$
6. If $3 \cot A = 4$, check whether $(1-\tan^2 A)/(1+\tan^2 A) = \cos^2 A - \sin^2 A$ or not.
7. If $\tan \theta = a/b$, find the value of $(\cos\theta + \sin\theta)/(\cos\theta - \sin\theta)$
8. If $3 \tan \theta = 4$, find the value of $(4\cos\theta - \sin\theta)/(2\cos\theta + \sin\theta)$
9. If $\tan \theta = a/b$, prove that $(a\sin\theta - b\cos\theta)/(a\sin\theta + b\cos\theta) = (a^2 - b^2)/(a^2 + b^2)$
10. If $\sec \theta = 13/5$, show that $(2\cos\theta - 3\cos\theta)/(4\sin\theta - 9\cos\theta) = 3$
11. If $\cos \theta = 12/13$, show that $\sin \theta (1 - \tan \theta) = 35/156$
12. If $\cot \theta = 1/\sqrt{3}$, show that $(1 - \cos^2 \theta)/(2 - \sin^2 \theta) = 3/5$
13. If $\cos \theta = 5/13$, find the value of $(\sin^2 \theta - \cos^2 \theta)/(2\sin \theta \cos \theta) = 3/5$
14. $\tan \theta = 12/13$ Find $(2\sin\theta\cos\theta)/(\cos^2\theta - \sin^2\theta)$
15. If $8 \tan A = 15$, find $\sin A - \cos A$.
16. If $\operatorname{Cosec} A = 2$ find $(1/\tan A) + \{\sin A/(1+\cos A)\}$
17. If $3\cos \theta - 4\sin \theta = 2\cos \theta + \sin \theta$ Find $\tan \theta$
18. If $\angle A$ and $\angle B$ are acute angles such that $\cos A = \cos B$, then show that $\angle A = \angle B$.
19. If $\angle A$ and $\angle P$ are acute angles such that $\tan A = \tan P$, then show that $\angle A = \angle P$.
20. In a $\triangle ABC$, right angled at A, if $\tan C = \sqrt{3}$, find the value of $\sin B \cos C + \cos B \sin C$.