

Mother's Advance • Trigonometry

37. What is the value of $\tan 24^\circ \cdot \tan 48^\circ \cdot \tan 42^\circ \cdot \tan 66^\circ$
 $\tan 24^\circ \cdot \tan 48^\circ \cdot \tan 42^\circ \cdot \tan 66^\circ$ का मान है-
 (A) 0 (B) 1
 (C) $1/2$ (D) 2
38. What is the value of expression
 $(\tan 0^\circ \cdot \tan 1^\circ \cdot \tan 2^\circ \cdot \tan 3^\circ \cdot \tan 3^\circ \cdot \dots \cdot \tan 89^\circ)$
 निम्नलिखित व्यंजक (expression) का मान क्या है ?
 $(\tan 0^\circ \cdot \tan 1^\circ \cdot \tan 2^\circ \cdot \tan 3^\circ \cdot \tan 3^\circ \cdot \dots \cdot \tan 89^\circ)$
 (A) 0 (B) 1
 (C) 2 (D) $1/2$
39. If $P = \tan\left(-\frac{11\pi}{6}\right)$, $q = \tan\left(\frac{21\pi}{4}\right)$ and $r = \cot\left(\frac{283\pi}{6}\right)$ then which of the following is/are correct?

यदि $P = \tan\left(-\frac{11\pi}{6}\right)$, $q = \tan\left(\frac{21\pi}{4}\right)$ और $r =$

$\cot\left(\frac{283\pi}{6}\right)$ है, तो निम्न में से कौन-सा कथन सत्य है ?

I. The value of $p \times r$ is 2.

II. p, q and r are in GP

Select the correct answer using the code given below :

निम्नांकित में से सही कोड का चयन कीजिए।

(A) Only I

(B) Only II

(C) Both I and II

(D) Neither I nor II

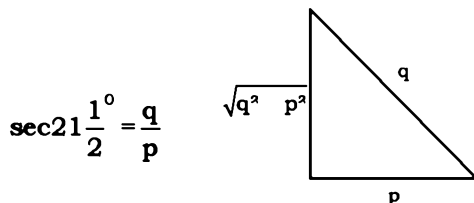
40. solve it : $\cos 5^\circ + \cos 24^\circ + \cos 175^\circ + \cos 204^\circ + \cos 300^\circ$
 सरल करें : $\cos 5^\circ + \cos 24^\circ + \cos 175^\circ + \cos 204^\circ + \cos 300^\circ$
 (A) $1/2$ (B) 1
 (C) $-1/2$ (D) 0

ANSWER

1. (B)	2. (C)	3. (D)	4. (A)	5. (B)	21. (C)	22. (A)	23. (A)	24. (A)	25. (C)
6. (D)	7. (B)	8. (C)	9. (A)	10. (A)	26. (B)	27. (D)	28. (A)	29. (A)	30. (A)
11. (A)	12. (D)	13. (D)	14. (C)	15. (D)	31. (B)	32. (B)	33. (B)	34. (B)	35. (B)
16. (D)	17. (B)	18. (A)	19. (A)	20. (D)	36. (B)	37. (B)	38. (A)	39. (B)	40. (A)

Solution

1. (B) Given, $\tan(315^\circ) = \tan(360^\circ - 45^\circ)$
 $= -\tan 45^\circ$ [$\because \tan(360^\circ - \theta) = -\tan \theta$]
 $= -1$
2. (C) $\cos(-780^\circ) = \cos 780^\circ$ [$\because \cos(-\theta) = \cos \theta$]
 $= \cos(2 \times 360^\circ + 60^\circ)$
 $= \cos 60^\circ = \frac{1}{2}$
3. (D) $\Rightarrow \operatorname{cosec}(1500^\circ)$
 $= \operatorname{cosec}(4 \times 360^\circ + 60^\circ)$
 $= \operatorname{cosec} 60^\circ = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$
4. (A) Given, $\tan(1125^\circ)$
 $= \tan(3 \times 360^\circ + 45^\circ)$
 $= \tan 45^\circ$ [$\because \tan(n \times 360^\circ + \theta) = \tan \theta$]
 $= 1$
5. (B) Given that



- $\sec 68.5^\circ = \frac{q}{\sqrt{q^2 - p^2}}$
6. (D)
7. (B) $\tan 7^\circ \cdot \tan 11^\circ \cdot \tan 23^\circ \cdot \tan 30^\circ \cdot \tan 45^\circ \cdot \tan 67^\circ \cdot \tan 79^\circ \cdot \tan 83^\circ$
 $1 \times 1 \times 1 \times 1 \times \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}}$
8. (C) Given, $\sin 120^\circ \sin 240^\circ \sin 270^\circ$
 $\Rightarrow \sin(90^\circ + 30^\circ) \sin(180^\circ + 60^\circ) \sin(180^\circ + 90^\circ)$
 $\Rightarrow \cos 30^\circ (-\sin 60^\circ) (-\sin 90^\circ)$
 $\Rightarrow \frac{\sqrt{3}}{2} \times \left(-\frac{\sqrt{3}}{2}\right) \times (-1) = \frac{3}{4}$
9. (A) Given, $\sin \frac{7\pi}{4} \sin \frac{\pi}{4} \sin \frac{3\pi}{4} \sin \frac{5\pi}{4}$
 $= \sin\left(\pi + \frac{3\pi}{4}\right) \sin \frac{\pi}{4} \sin \frac{3\pi}{4} \sin\left(\pi + \frac{\pi}{4}\right)$
 $= \left(-\sin \frac{3\pi}{4}\right) \sin \frac{\pi}{4} \sin \frac{3\pi}{4} \left(-\sin \frac{\pi}{4}\right)$
 $= \sin \frac{3\pi}{4} \sin \frac{\pi}{4} \sin \frac{3\pi}{4} \sin \frac{\pi}{4}$