

APOLLO

Trigonometric Identities

FBISE Mathematics Class 9 (SSC-I)

Domain B: Geometry

12 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

27	The value of $\cos^2 100^\circ + \sin^2 100^\circ$ is:	0	0.81	1	1.15
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OR	Prove that $\sqrt{\frac{1-\cos\theta}{1+\cos\theta}} = \frac{\sin\theta}{1+\cos\theta}$	3
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OR	A ladder reaches a height of 4 m on a wall. The foot of the ladder is 3 m from the wall. If θ is the angle the ladder makes with the ground, (a) Find the values of $\sin \theta$ and $\cos \theta$. (b) Verify that $\sin^2 \theta + \cos^2 \theta = 1$	3
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Prove that:	ثابت کریں کہ:	
$\frac{\sin\theta}{(1-\cos\theta)} = \operatorname{cosec}\theta + \cot\theta$		04

(v)	Prove that:	ثابت کریں کہ:	
	$\frac{\sin\theta}{1-\cos\theta} - \frac{1+\cos\theta}{\sin\theta} = 0$		04

(v)	Show that $\sin^2\theta + \cos^2\theta = 1$ by Pythagoras Theorem.	04	OR	A regular hexagon has a side of 6 cm. Find its perimeter and each interior angle.	04
	مسئلہ فیثاغورث کی مدد سے معلوم کریں کہ $\sin^2\theta + \cos^2\theta = 1$			ایک باقاعدہ چھ ضلعی شکل (مدرس) کی ہر ضلع 6 سینٹی میٹر ہے۔ اس کا محیط (perimeter)	

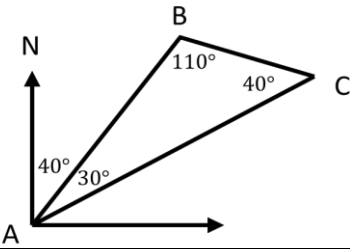
OR	calculate: a. The probability of selecting a white ball. b. The probability of selecting a black ball c. The sum of all the probability	04
OR	An earthquake that occurred in Pakistan in 2005, measured 7.6 on the Richter scale. In 1978, an earthquake in China measured 8.2 on the Richter scale. How many times, the China's earthquake was stronger than the Pakistan's earthquake? (Use $M = \log\left(\frac{I}{I_o}\right)$)	04
OR	Find the equation of a line through the point (1,3) and the point of intersection of lines $2x - 3y + 4 = 0$ and $4x + y - 1 = 0$.	04
OR	Factorize the quadratic expression: $3x^2 + 16x - 12$	04
OR	Verify that $\sin^2 \theta + \cos^2 \theta = 1$	04

(v)	Verify that: $\sqrt{\frac{1 - \cos \theta}{1 + \cos \theta}} = \frac{\sin \theta}{1 + \cos \theta}$	2+2	OR	An exterior angle of a regular polygon is 12° . What is the sum of all the interior angles? If length of its one side is 1 m then find its perimeter.	3+1
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$1 + \tan^2 \theta =$	$\sin^2 \theta$	$\cos^2 \theta$	$\sec^2 \theta$	$\operatorname{cosec}^2 \theta$
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Show that: $1 + \tan^2 \theta = \sec^2 \theta$	04
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ix.	What is the value of $-3 - 3 \tan^2 \theta$ in a single trigonometric function?	$3 \operatorname{cosec}^2 \theta$	$-3 \sec^2 \theta$	$3 \sec^2 \theta$	$-3 \operatorname{cosec}^2 \theta$
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Q.2	Question	Mark
i.	Simplify the expression $\left[(125)^{\frac{1}{3}} \times (25)^{\frac{1}{2}} + (64)^{\frac{2}{3}} \times 6 + (8)^{\frac{2}{3}} \right]^{\frac{-2}{3}}$	4
ii.	The attached figure shows the position of three points A , B , and C . State the bearing of: B from A ; A from B ; B from C , and C from B . 	4
iii.	Bani Gala had a population of 10,000 people in the year 2015. The population has been growing exponentially at a rate of 2.5% per year. Using the exponential growth formula $P(t) = P_0 e^{rt}$, apply laws of logarithm to determine the year when population reaches up to 25,000.	4
iv.	Solve the linear equation $\frac{1}{3}(x - 2) + \frac{2 - 3x}{2} = \frac{x + 5}{6}$	4
v.	Prove that: $\frac{1}{1 + \cos x} + \frac{1}{1 - \cos x} = 2 + 2 \cot^2 x$	4