## MCQ's question

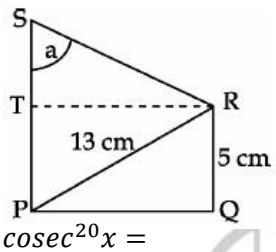
**1.** In $\Delta PQR$, right angled at Q if $\angle R = \theta$ then the value of $25(sin^2\theta + 2cos^2\theta - \tan\theta)$ is

(i) 2/3 (ii) -2/3 (iii) 3/2 (iv) -3/2

**2.** In $\Delta ABC$, right angled at B if $\tan A = \sqrt{3}$, then $\cos A \cos C - \sin A \sin C =$

(i) -1 (ii) 0 (iii) 1 (iv) $\frac{\sqrt{3}}{2}$

**3.** In given figure if PS=14 cm, then the value of tan a is equal to




(i) 4/3 (ii) 14/3 (iii) 5/3 (iv) 13/3

**4.** If $\sin x + cosec\ x = 2$ then $sin^{19}x + cosec^{20}x =$

(i) $2^{19}$ (ii) $2^{20}$ (iii) 2 (iv) $2^{39}$

**5.** If $\cot\theta = \frac{1}{\sqrt{3}}$, then the value of $(sec^2\theta + cosec^2\theta)$ is

(i) 1 (ii) 40/9 (iii) 38/9 (iv) $5\frac{1}{3}$

**6.** Given that , $\sec\theta = \sqrt{2}$, then the value of $\frac{1+\tan\theta}{\sec\theta}$ is

(i) $2\sqrt{2}$ (ii) $\sqrt{2}$ (iii) $3\sqrt{2}$ (iv) 2

**7.** If $4\tan\theta = 3$, then $5\left(\frac{\cos\theta}{4}\right)$ is

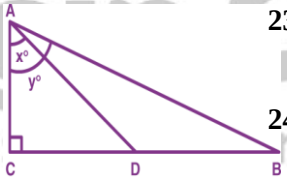
(i) 1 (ii) 3/4 (iii) 5/4 (iv) 3

**8.** Given that $\sin\theta = \frac{a}{b}$ then $\cos\theta$ is equal to

(i) $\frac{b}{\sqrt{b^2-a^2}}$ (ii) $\frac{\sqrt{b^2-a^2}}{b}$

(iii) $\frac{b}{a}$ (iv) $\frac{b}{\sqrt{b^2-a^2}}$

**9.** In the given figure, D is the mid-point of BC, then the value of cot $y^0$/cot $x^0$ is




(i) 0 (ii) 1 (iii) ½ (iv) $\sqrt{3}/2$

**10.** If $\sin\theta - \cos\theta = 0$ then the value of $sin^4\theta + cos^4\theta$ is

(i) 1 (ii) 3/4 (iii) 1/2 (iv) 1/4

**11.** If $\sin\theta + \text{cosec}\,\theta = 2$ then the value of $sin^2\theta + cosec^2\theta$ is equal to

(i) 1/2 (ii) 1 (iii) 2 (iv) 3/4

**12.** If $4\tan\beta = 3$, then the value of $\frac{4\sin\beta - 3\cos\beta}{4\sin\beta + 3\cos\beta}$ is

(i) 0 (ii) 1/3 (iii) 2/3 (iv) 3/4

**13.** If $\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta} = \frac{1-\sqrt{3}}{1+\sqrt{3}}$ then the value of acute $\tan\theta$ is

(i) $1/\sqrt{3}$ (ii) 1 (iii) $\sqrt{3}$ (iv) NOT

**14.** If $\sin\theta = \frac{5}{7}$ then what is the value of $\tan\theta$

(i) 5/2 (ii) $5/\sqrt{6}$ (iii) $5/2\sqrt{6}$ (iv) NOT

**15.** If $\tan\theta = \frac{a}{b}$ *then* $\frac{a\sin\theta - b\cos\theta}{a\sin\theta + b\cos\theta}$ is

(i) $\frac{a^2+b^2}{a^2-b^2}$ (ii) $\frac{a^2-b^2}{a^2+b^2}$

(iii) $\frac{a^2}{a^2+b^2}$ (iv) $\frac{b^2}{a^2+b^2}$

**16.** If $7\tan\theta = 4$ then $\frac{(7\sin\theta - 3\cos\theta)}{(7\sin\theta + 3\cos\theta)}$

(i) 1/7 (ii) 5/7 (iii) 3/7 (iv) 5/14

**17.** The value of $\sin\theta$ lies between-

(i) $-1 \le \sin\theta \le 1$ (ii) $1 \le \sin\theta \le 2$

(iii) any real no (iv) always greater than 1

**18.** The maximum value of $\frac{1}{\cos\theta}$ is

(i) 1 (ii) -1

(iii) -1 to 1 (iv) $\infty$ or not define

**19.** The value of $\cot\theta$ is

(i) $-1 \le \cot\theta \le 1$ (ii) $1 \le \cot\theta \le 2$

(iii) any real no (iv) always greater than 1

**20.** If $\Delta ABC$ is right angled at C, then the $\cos(A + B)$ is

(i) 0 (ii) 1 (iii) 1/2 (iv) $\sqrt{3}/2$

**21.** If $\alpha, \beta$ are acute, $\sin\alpha = \frac{\sqrt{3}}{2}$ and $\cos\beta = \frac{\sqrt{3}}{2}$ then $\alpha + \beta$ is

(i) 30° (ii) 60° (iii) 90° (iv) 120°

**22.** If $\sin\theta - \cos\theta = 0$ then the value of $sin^4\theta + cos^4\theta$ is

(i) 1 (ii) 3/4 (iii) 1/2 (iv) ¼

**23.** The value of $\frac{2\tan 60°}{1+tan^2 60°}$

(i) 1/2 (ii) $\sqrt{3}/2$ (iii) $1/\sqrt{2}$ (iv) $\sqrt{3}$

**24.** Given that $\text{cosec}\,\alpha = \frac{2}{\sqrt{3}}$ and $\tan\beta = \frac{1}{\sqrt{3}}$ then $cos(\alpha - \beta)$ *is*

(i) 1/2 (ii) $\sqrt{3}/2$ (iii) $1/\sqrt{2}$ (iv) 0

**25.** If $\sin(A + B) = \cos(A - B) = 1$, then

(i) A=B=0° (ii) A=B=45°

(iii) A=60° , B=30° (iv) A=90° , B=60°

**26.** In $\Delta PQR$ right angle at Q, PQ = 3 cm and PR = 6 cm then $\angle QPR$ is

(i) 30° (ii) 0° (iii) 45° (iv) 60°

**Assertion and Reason**

Direction: In the Following Questions, A Statement of Assertion (A) Is Followed by A Statement of Reason (R). Mark The Correct Choice As

**27. Assertion(A)** :The value of each of the trigonometric ratio of an angle do not vary with the length of the sides of the triangle, if the angle remains the same.

**Reason(R)**: In right angle triangle, if $\angle B = 90^0$and $\angle A = \theta$, $\sin\theta = \frac{BC}{AC} < 1 \; and \; \cos\theta = \frac{AB}{AC} < 1$ as hypotenuse is the longest side.

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

c)Assertion (A) is true but reason (R) is false.

d)Assertion (A) is false but reason (R) is true

**28. Assertion(A)** :In $\Delta PQR$ right angled at Q, $PR - PQ = 1$ cm and $QR = 3$ cm. The value of $sin^2R + cosec\ R$ is $\frac{189}{100}$

**Reason(R)**: $\sin^2 A = (\sin A)^2$ and $\text{cosec}\ A = (\sec A)^{-1}$

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

c)Assertion (A) is true but reason (R) is false.

d)Assertion (A) is false but reason (R) is true

**29.** The value of $\sin\theta$ or $\cos\theta$ never exceeds……..

**30.** In a triangle ΔPQR, $\angle PQR = 90°$. If $\tan R = \sqrt{3}$, then find the value of $\sin P \,.\, \cos R - \sin R \,.\, \cos P$.

**31.** If $\cos\theta = \frac{3}{5}$, find value of $\left(\frac{5\,\text{cosec}\,\theta - 4\tan\theta}{\sec\theta + \cot\theta}\right)$

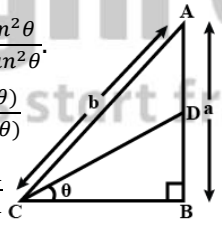
**32.** If $5\cot\theta = 3$, find $\left(\frac{5\sin\theta - 3\cos\theta}{4\sin\theta + 3\cos\theta}\right)$.

**33.** In a ΔABC, it is given that$\angle C = 90°$, and $\tan A = \frac{1}{\sqrt{3}}$, find the value of $(\sin A\cos B + \cos A\sin B)$.

**34.** If $\sec\theta = \frac{17}{8}$, show that $\frac{3 - 4sin^2\theta}{4cos^2\theta - 3} = \frac{3 - tan^2\theta}{1 - 3tan^2\theta}$.

**35.** If $\cot\theta = \frac{15}{8}$, evaluate $\frac{(2+2\sin\theta)(1-\sin\theta)}{(1+\cos\theta)(2-2\cos\theta)}$

**36.** If 3 cot A = 4, find the value of $\frac{\text{cosec}^2 A + 1}{\text{cosec}^2 A - 1}$




**37.** If $4\tan\theta = 3$, evaluate $\left(\frac{4\sin\theta - \cos\theta + 1}{4\sin\theta + \cos\theta - 1}\right)$

**38.** If $\sin\theta = \frac{12}{13}$ then Evaluate $\frac{sin^2\theta - cos^2\theta}{2\sin\theta.\cos\theta} \times \frac{1}{tan^2\theta}$.

**39.** In fig. AD=DB and $\angle B$ is a right angle

Determine (i) $\sin\theta$ (ii) $\cos\theta$ (iii) $\tan\theta$

**40.** If $\theta$ is an acute angle and $\tan\theta + \cot\theta = 2$, then Find the value of $tan^7\theta + cot^7\theta$

**41.** If $\sqrt{3}\sin\theta = \cos\theta$, then Evaluate $\frac{3cos^2\theta + 2\cos\theta}{3\cos\theta + 2}$.

**42.** In triangle ABC if $\angle B$ is right angle and $\angle A = \theta$ then prove that (i) $sin^2\theta + cos^2\theta = 1$

(ii) $1 + tan^2\theta = sec^2\theta$

**43.** If $\cos A = \frac{7}{25}$, then find the value of

(i) $(\tan A + \cot A)$ (ii) $(\sin A + \cos A)\sec A$.

**44.** In $\Delta PQR$, right angled at Q, PR+QR=25cm and PQ=5 cm. Determine the value of $\sin P$ , $\cos P$ and $\tan P$

**45.** If $\cot B = \frac{12}{5}$, then prove that

$tan^2B - sin^2B = sin^4B.sec^2B$

**46.** In triangle ABC if $\angle B$ is right angle, BC = 7 cm and $AC - AB = 1\ cm$. Find the value of $\cos A + \sin A$.

**47.** If $\tan A = \sqrt{2} - 1$ then show that $\sin A \,.\, \cos A = \frac{\sqrt{2}}{4}$.

**48.** If $21\,\text{cosec}\,\theta = 29$ then Evaluate $\frac{cos^2\theta - sin^2\theta}{1 - 2sin^2\theta}$ .

**49.** If $\sec\alpha = \frac{5}{4}$ , Evaluate $\frac{1-\tan\alpha}{1+\tan\alpha}$

**50.** If $\sin\emptyset = \cos\emptyset$, then find $\emptyset$

**51.** Simplify $\sin 60°.\cos 30° + \cos 60°.\sin 30°$

**52.** Evaluate $\frac{5cos^2 60° + 4sin^2 30° - tan^2 45°}{\sin 30° + \cos 60°}$.

**53.** If $tan(A + B) = \sqrt{3}$ and $\tan(A - B) = \frac{1}{\sqrt{3}}$, then find the value of A and B.

**54.** Prove that (i) $(\sqrt{3} + 1)(3 - \cot 30°) = tan^3 60° - 2\tan 60°$.

**55.** Evaluate $4(sin^4 45° + cos^4 45°)^2 - 2(tan^2 30° + cot 230° + cosec 245°$.

**56.** If $\cot 3\varphi = 1/\sqrt{3}$ then find the value of $\varphi$

**57.** If $\sqrt{3}\sin 2\theta = 3/2$ then find the value of $\theta$

**58.** If $\tan(3x - 15) = 1$ then find the value of $x$.

**59.** Prove that $(\sqrt{3} + 1)(3 - \cot 30°) = tan^3 60° - 2\tan 60°$ .

**60.** If $2\cos\left(\frac{A}{2}\right) = \sqrt{3}$, then the value $\tan A$

**61.** Evaluate : $4(sin^4 45° + cos^4 45°)^2 - 2(tan^2 30° + cot 230° + cosec 245°$.

**62.** In $\Delta PQR$, right angled at Q, PR+QR=25cm and PQ=5 cm. Determine the value of $\sin P$ , $\cos P$ and $\tan P$.

**63.** If $\sqrt{3}\sec(3x - 21°) = 2$, then find the value of $sin^2(x + 13)° + cot^2(x + 13)°$.

**64.** An equilateral triangle is inscribed in a circle of diameter 24 cm. Find its side.

**65.** If $4cos^2 A - 3 = 0$, show that $\cos 3A = 4cos^3 A - 3\cos A$.