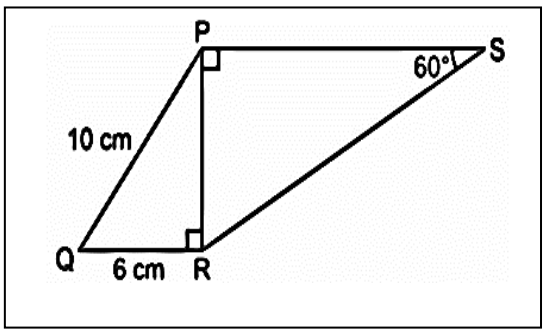
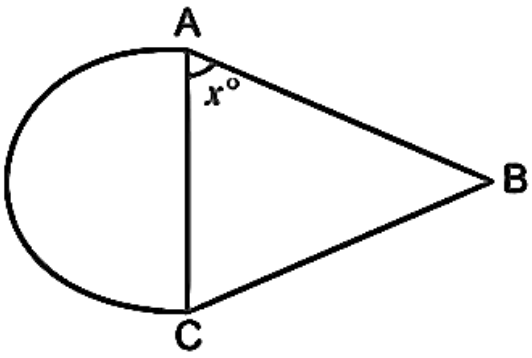
INDIAN SCHOOL AL WADI AL KABIR

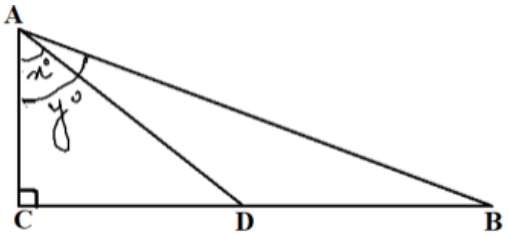
Class X, Mathematics

Worksheet-Introduction to Trigonometry

10 - 08 - 2023

Q. No.	Questions of 1 Mark each. (MCQ's)							
1.	If $\sin\theta = \cos\theta$, then the value of $2\tan\theta + \cos^2\theta$ is:							
	A	1	**B**	$\frac{1}{2}$	**C**	$\frac{5}{2}$	**D**	$\frac{2}{5}$
2.	In a right triangle PQR, $\angle Q = 90°$. Which of these is ALWAYS 0? **(CFQ)**							
	A	cos P-sec R	**B**	tan P – cot R	**C**	sin P – cosec R	**D**	cannot be known without value of P
3.	If $2\cos^2\left(\frac{A}{2}\right) = 1$, then A is:							
	A	90°	**B**	45°	**C**	30°	**D**	60°
4.	If $\tan\theta = \cot(30°+\theta)$, find the value of θ.							
	A	90°	**B**	45°	**C**	30°	**D**	60°
5.	$\frac{\tan 60°-\tan 30°}{1+\tan 60°\times\tan 30°}$ equals:							
	A	$\sqrt{3}$	**B**	$\frac{1}{\sqrt{3}}$	**C**	0	**D**	1
6.	P and Q are acute angles such that P > Q. Which of the following is DEFINITELY true?**(CFQ)**							
	A	sin P < sin Q	**B**	tan P > tan Q	**C**	cos P > cos Q	**D**	cos P > sin Q
	For solving Questions 7 & 8 refer to the following figure: In the figure given below, PQRS is a quadrilateral. PR is perpendicular to QR and PS. **(CFQ)**  							

7.	Find the value of tan Q.							
	A	$\frac{3}{5}$	**B**	$\frac{1}{2}$	**C**	1	**D**	$\frac{4}{3}$
8.	Find length of RS.							
	A	8 units	**B**	10 units	**C**	$8\sqrt{2}$ units	**D**	$\frac{16\sqrt{3}}{3}$ units
9.	Find the value of $\sec\theta(1 - \sin\theta)(\sec\theta + \tan\theta)$							
	A	0	**B**	3	**C**	1	**D**	5
10.	ABC is an isosceles triangle, with AB = BC. A semicircle of the area equal to that of the triangle is combined with it. Find the value of tan x. **(CFQ)** 							
	A	1	**B**	$\frac{1}{4}\pi$	**C**	$\frac{1}{2}\pi$	**D**	π
11.	If $2\sin^2\beta - \cos^2\beta = 2$, then β is:							
	A	0°	**B**	90°	**C**	45°	**D**	30°
12.	If $\tan\alpha + \cot\alpha = 2$, then $\tan^{20}\alpha + \cot^{20}\alpha$ is:**(CFQ)**							
	A	0	**B**	2	**C**	20	**D**	2^{20}
13.	If $1+ \sin^2\alpha = 3 \sin\alpha \cos\alpha$, then values of cot α are:**(CFQ)**							
	A	-1, 1	**B**	0, 1	**C**	-1, -1	**D**	1,2

14.	In the given figure, D is the mid-point of BC, then the value of $\frac{\cot y°}{\cot x°}$ is: **(CFQ)** 							
	A	$\frac{1}{2}$	**B**	$\frac{1}{3}$	**C**	$\frac{1}{4}$	**D**	2
15.	Given that sin $\theta = \frac{a}{b}$, then tan θ is equal to:							
	A	$\frac{a}{\sqrt{a^2+b^2}}$	**B**	$\frac{b}{\sqrt{b^2-a^2}}$	**C**	$\frac{a}{\sqrt{a^2-b^2}}$	**D**	$\frac{a}{\sqrt{b^2-a^2}}$
	DIRECTION: In the following questions, a statement of **assertion (A)** is followed by statement of **Reason (R)**. Choose the correct option							
	(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 and 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.							
16.	Assertion(A): The value of $\sin 60^0 \cos 30^0 + \sin 30^0 \cos 60^0$ is 1. Reason(R): $\sin 90^0 = 1$ and $\cos 90^0 = 0$							
17.	Assertion(A): If $x = 2\sin^2\theta$ and $y = 2\cos^2\theta + 1$ then the value of $x + y = 3$. Reason(R): For any value of θ, $\sin^2\theta + \cos^2\theta = 1$							
18.	Assertion(A): In a right ΔABC, right angled at B, if $\tan A = 1$, then $2\sin A.\cos A = 1$ Reason(R): cosec A is the abbreviation used for cosecant of angle A.							
19.	Assertion(A): $(\cos^4 A - \sin^4 A)$ is equal to $2\cos^2 A - 1$. Reason(R):The value of $\cos\theta$ decreases as θ increases.							
20.	Assertion(A): If $\cos A + \cos^2 A = 1$ then $\sin^2 A + \sin^4 A = 2$. Reason(R): $\sin^2 A + \cos^2 A = 1$, for any value of A.							

	Answers							
Answers	1	C	2	B	3	A	4	C
	5	B	6	B	7	D	8	D
	9	C	10	C	11	B	12	B
	13	D	14	A	15	D	16	b
	17	d	18	b	19	b	20	d