

CHAPTER

2

Syllabus

$$= \frac{\sqrt{3-x}}{\sqrt{3+x}}$$

$$= \frac{\sqrt{3-x}}{\sqrt{3+x}}$$

$$= \frac{3}{\sqrt{(3)^2}}$$

$$= \frac{3-\sqrt{5}}{\sqrt{9-5}}$$

$$= \frac{3-\sqrt{5}}{2}$$

Q. 3. Which of the following is the p
of $\cos^{-1}x$?

(A) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

(B)

Explanation: We have,

$$\begin{aligned} & 2\sec^{-1} 2 + \sin^{-1} \left(\frac{1}{2} \right) \\ &= 2\sec^{-1} \sec \frac{\pi}{3} + \sin^{-1} \sin \frac{\pi}{6} \\ &= 2 \times \frac{\pi}{3} + \frac{\pi}{6} \\ &\quad \left[\because \sec^{-1}(\sec x) = x \right] \\ &= \frac{4\pi + \pi}{6} \\ &= \frac{5\pi}{6} \end{aligned}$$

Q. 9. What is the value of $\sec^2 (\tan^{-1} 2)$?

(A) 1

(B)

(C) 5

(D)



ASSERTION

Directions : In the following question, Assertion (A) is followed by Reason (R). Mark the correct option.

- (A) Both A and R are true and R is a correct explanation of A
- (B) Both A and R are true but R is not a correct explanation of A
- (C) A is true but R is false
- (D) A is false and R is True

Q. 1. Assertion (A): $\sin^{-1}\left(\sin\frac{2\pi}{3}\right) = \frac{2\pi}{3}$

Reason (R): $\sin^{-1}(\sin \theta) = \theta$, if $\theta \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

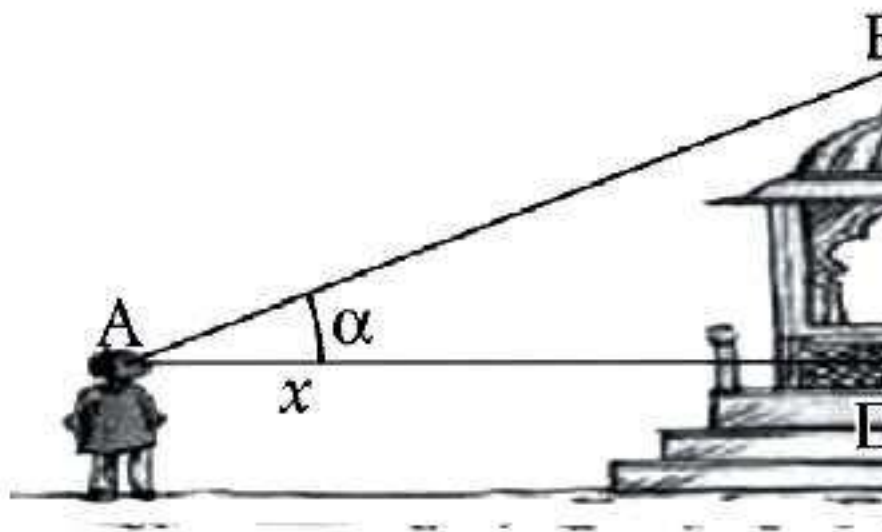
Ans. Option (D) is correct.



CASE-BASE

Attempt any four sub-parts
Each sub-part carries 1 mark

I. Read the following text and
questions on the basis of the



Two men on either side of a
high observe its top at the
and B respectively (as shown)

Q. 5. Domain and Range of $\cos^{-1} x$

(A) $(-1, 1), (0, \pi)$ (B)

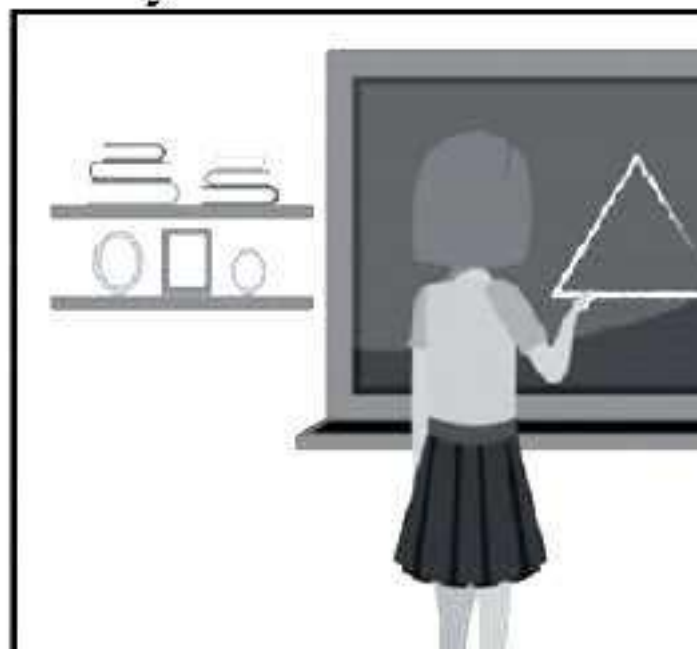
(C) $[-1, 1], [0, \pi]$ (D)

Ans. Option (C) is correct.

II. Read the following text and answer the following questions on the basis of the text.

In the school project Sheetal was asked to draw a triangle and name it as $\triangle ABC$.

The angles $\angle A$ and $\angle B$ were given to be equal to 45° and 90° respectively.



Q. 1. Principal value of $\sin^{-1} \left(\frac{1}{2} \right)$ is

(A) $\frac{\pi}{6}$ (B)

(C) $\frac{\pi}{4}$ (D)

Ans. Option (A) is correct.

Explanation:

$$\sin^{-1} \left(\frac{1}{2} \right) = y$$

$$\sin y = \frac{1}{2}$$

Principal value branch of $\sin^{-1}$

and $\sin \left(\frac{\pi}{6} \right) = \frac{1}{2}$