ASSERTION & REASON WORKSHEET
CHAPTERS: TRIGONOMETRY, STATISTICS& SURFACE AREA & VOLUME

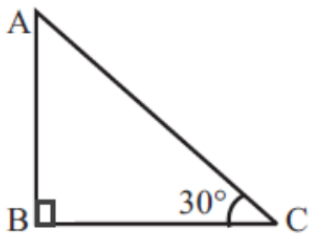
Assertion Reason Questions for Class 10 Maths Chapter 9 Applications of Trigonometry

Directions:

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
(c) If Assertion is correct but Reason is incorrect.
(d) If Assertion is incorrect but Reason is correct.

Q.1. **Assertion:** If the length of shadow of a vertical pole is equal to its height, then the angle of elevation of the sun is 45°.
Reason: According to Pythagoras theorem, $h^2 = l^2 + b^2$, where h = hypotenuse, l = length and b = base

Q.2. **Assertion:** In the figure, if BC = 20 m, then height AB is 11.56 m.



Reason: $\tan\theta$ = AB/BC = perpendicular/base, where θ is the angle $\angle ACB$

Q.1. Assertion: If the value of mode and mean is 60 and 66 respectively, then the value of median is 64.

Reason: Median = (mode + 2 mean)/2

Q.2. Assertion: The arithmetic mean of the following given frequency distribution table is 13.81.

x	4	7	10	13	16	19
f	7	10	15	20	25	30

Reason: $\overline{x} = \sum f_i x_i / \sum f_i$

Q.3. Assertion: If the number of runs scored by 11 players of a cricket team of India are 5, 19, 42, 11, 50, 30, 21, 0, 52,
36, 27 then median is 30.

Reason: Median = (n+1)/2, if n is odd.

Q.1. **Assertion:** If the height of a cone is 24 cm and diameter of the base is 14 cm, then the slant height of the cone is 15 cm.
Reason: If r be the radius and h the slant height of the cone, then slant height = $\sqrt{(h^2+r^2)}$

Q.2. **Assertion:** Total surface area of the cylinder having radius of the base 14 cm and height 30 cm is 3872 cm^2.
Reason: If r be the radius and h be the height of the cylinder, then total surface area = $(2\pi rh + 2\pi r^2)$.

Q.3. **Assertion:** If the radius of a cone is halved and volume is not changed, then height remains same.
Reason: If the radius of a cone is halved and volume is not changed then height must become four times of the original height.

Q.4. **Assertion:** No. of spherical balls that can be made out of a solid cube of lead whose edge is 44 cm, each ball being 4 cm. in diameter, is 2541
Reason: Number of balls = Volume of one ball / Volume of lead

Q.5. **Assertion:** If a ball is in the shape of a sphere has a surface area of 221.76 cm2, then its diameter is 8.4 cm.
Reason: If the radius of the sphere be r, then surface area, S = 4πr2, i.e., r = $\sqrt{(S/4\pi)}$