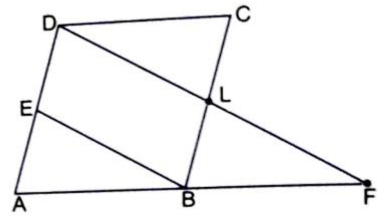
BCM SCHOOL, BASANT AVENUE, DUGRI, LUDHIANA
CLASS IX – MATHEMATICS
ANSWER KEY: OCTOBER ASSIGNMENT (2025–26)
TOPIC: SURFACE AREA AND VOLUMES AND QUADRILATERALS

QUES.	SOLUTION/ HINT
1.	(b) 1:4
2.	(a) $\angle BDC = 45°$
3.	(b) Both the assertion (A) and reason (R) are true and Reason is the correct explanation of Assertion.
4.	Bisectors of ∠A and ∠B intersect at point O. $\angle A = 2\angle OAB$, $\angle B = 2\angle OBA$ $\angle OAB + \angle OBA + \angle AOB = 180°$ (ASP of Δ) $2\angle OAB + 2\angle OBA + 2\angle AOB = 360°$ $\angle A + \angle B + 2\angle AOB = 360°$............(1) Also, $\angle A + \angle B + \angle C + \angle D = 360°$..........(2) From (1) and (2) $2\angle AOB = \angle C + \angle D$
5.	Curved surface area (CSA) = 10 × slant height $\pi rl = 10l$ ⇒ $r = 10/\pi \approx 3.18$ m ⇒ Diameter = 6.36 m
6.	Volume = $(1/3)\pi r^2h = 301.44$ r:h = 3:4 h = 4x, r = 3x so, $(1/3)\pi(9x^2)(4x) = 301.44$ x = 2 r = 6 cm, h = 8 cm slant height = $\sqrt{r^2 + h^2} = 10$ cm
7.	Since D, E, F are midpoints of ΔABC, By Midpoint theorem, DE || AB and DE = ½ AB…..(1) EF || BC and EF = ½ BC…..(2) FD || AC and FD = ½ AC….(3) AB = BC = AC ½ AB = ½ BC = 1/2 AC DE = EF = FD (By 1, 2,3) Therefore, Δ DEF is an equilateral triangle.

8.	 **Sol.** (*i*) As $EB \parallel DL$ and $ED \parallel BL$. Therefore, $EBLD$ is a parallelogram. $\therefore\ BL = ED = \frac{1}{2}AD = \frac{1}{2}BC = CL$ Now in triangles DCL and FBL, we have $CL = BL$ (Proved above) $\angle DLC = \angle FLB$ (Vertically opposite angles) $\angle CDL = \angle BFL$ (Alternate angles) $\therefore\ \Delta DCL \cong \Delta FBL$ (By AAS congruence criterion) $\therefore\ DC = BF$ and $DL = FL$ Now, $BF = DC = AB$ $\Rightarrow\ 2AB = 2DC \Rightarrow AF = 2DC$ (*ii*) $\because\ DL = FL \Rightarrow DF = 2DL$
9.	Let r, R be radii of smaller and larger spheres respectively. Volume of smaller sphere = $4/3\ \pi\ r^3 = 4/3 \times \pi \times 125/8\ cm^3$ Volume of larger sphere = $4/3\ \pi\ R^3$ Density of metal = Mass / volume Since, Density of metal remains the same Therefore, $740/(125/6)\ \pi = 5920/(4/3\ \pi\ R^3)$ Solving $R^3 = 125$ R = 5 cm
10.	a) Cloth required = $2 \times 2\pi r^2 = 2 \times 2\pi(4.2)^2 = 2 \times 110.88 = 221.76\ m^2$ b) Volume of one pillar = $\pi r^2 h + (2/3)\pi r^3$ = c) Volume of hemispherical dome (r = 7 m) = $(2/3)\pi r^3 = (2/3) \times 22/7 \times 343$ = 718.67 m^3 d) LSA of 4 pillars = $4 \times 2\pi rh = 4 \times 2 \times 22/7 \times 1.4 \times 14 = 4 \times 123.2 = 492.8\ m^2$