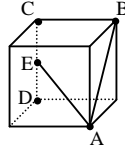


1. In the given cube, E is the midpoint of the side CD. Find the measure of the angle BAE.



- A) 30 B) 45 C) 60 D) 75 E) 90

2. The length, the width and the altitude of a rectangular prism is directly proportional by 3,4 and 5. If the diagonal of the rectangular prism is $\sqrt{200}$ cm, find the total surface. (cm^2)

- A) 480 B) 462 C) 564 D) 376 E) 188

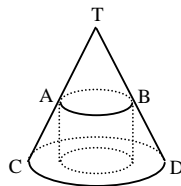
3. A sphere is inscribed in a cylinder. Let C and S denote the lateral area of the cylinder and surface area of the sphere respectively then ...

- A) $C = S$ B) $C = 2S$
 C) $2C = S$ D) $C = 3S$
 E) $3C = S$

4. A cylinder is inscribed in a cube then the ratio of the volume of the cylinder to the volume of the cube is ...

- A) 2π B) π C) $\frac{\pi}{2}$ D) $\frac{\pi}{4}$ E) $\frac{\pi}{6}$

5. A right cylinder is inscribed inside a right cone. If the volume of the frustum of the cone ABCD is 26 times the volume of the small cone TAB, find the ratio between the volume of the frustum of the cone and the cylinder.

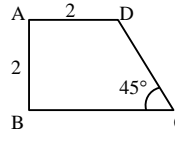


- A) 3 B) 4 C) $\frac{13}{2}$ D) $\frac{13}{3}$ E) $\frac{26}{3}$

6. A right cylinder is inscribed inside a sphere. If altitude of the cylinder is 8 cm and volume is $72\pi \text{ cm}^3$, find the radius of the sphere.

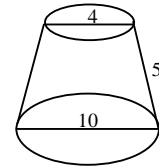
- A) 3 B) 4 C) 5 D) 6 E) 7

7. The trapezoid given in the figure is revolved 360° around the side AB. Find the volume of the solid body formed. (cm^3)



- A) $\frac{28}{3}\pi$ B) $\frac{56}{9}\pi$
 C) $\frac{28\sqrt{3}}{3}\pi$ D) $\frac{56}{3}\pi$
 E) $\frac{112}{3}\pi$

8. The radii of the frustum of cone are 2 and 5 cm. If the lateral side of the cone is 5 cm, then find the volume of the cone.

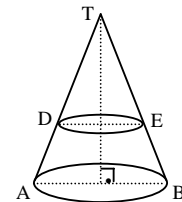


- A) 38π B) 40π C) 50π D) 52π E) 56π

9. A sphere is inscribed inside a right cylinder. Find the ratio between the volumes of the cylinder and the sphere.

- A) $\frac{3}{2}$ B) $\frac{4}{3}$ C) 2 D) 3 E) $\frac{9}{4}$

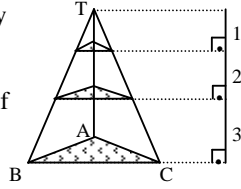
10. In the given figure, $DE \parallel AB$ and $|TD| = 2|AD|$. If the volume of the frustum of the cone given in the figure is $57\pi \text{ cm}^3$, find the volume of the cone. (in $\pi \text{ cm}^3$)



- A) 64 B) 72 C) 81 D) 96 E) 108

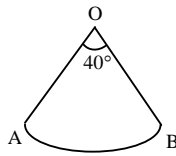
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11. The pyramid (T,ABC) is cut into three pieces by planes parallel to the base as shown in the figure. Find the ratio of the volume of the second piece to the pyramid (T,ABC) .



- A) $\frac{1}{2}$ B) $\frac{1}{8}$ C) $\frac{1}{27}$ D) $\frac{7}{216}$ E) $\frac{13}{108}$

12. By using the sector given in the figure, a right cone is formed. If the altitude of the cone is $16\sqrt{5}$ cm, find the lateral area of the cone. (in cm^2)

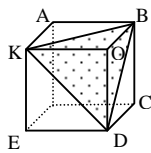


- A) 144π B) 160π C) 360π
 D) 800π E) 1800π

13. A right cone with radius 6 units and altitude 8 units is given. What is the area of the sphere with the greatest volume that can be inscribed in the cone? (π units²)

- A) 96 B) 82 C) 72 D) 48 E) 36

14. Find the ratio between the volume of the pyramid BKDO and the cube.



- A) $\frac{1}{12}$ B) $\frac{1}{4}$ C) $\frac{1}{8}$ D) $\frac{1}{5}$ E) $\frac{1}{6}$

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