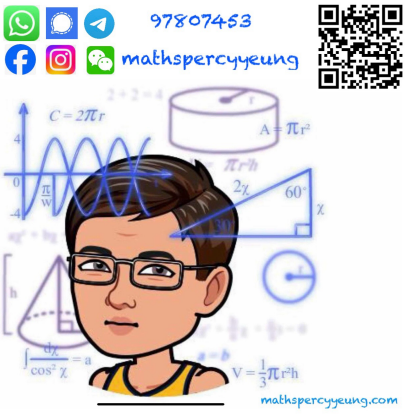
WKF Grade 9 Mathematics Term 2 Consolidated Assignment 9



Content: Ch.7 Areas and Volumes (III)

1. In Figure I, $ABCZXY$ is a right triangular prism. It is given that $AB = 21$ cm, $AC = 35$ cm, $CZ = 60$ cm and $AB \perp BC$.

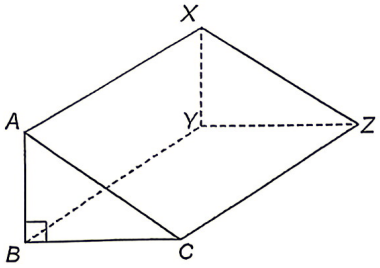


Figure I

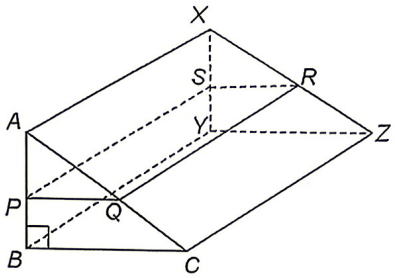


Figure II

(a) Find the area of ΔABC .

(b) Find the volume of the triangular prism $ABCZXY$.

(c) The plane $PQRS$ which is parallel to the face $BCZY$ cuts the triangular prism $ABCZXY$ into two blocks $APQRXS$ and $PBCQRSYZ$ as shown in Figure II. It is given that P is the mid-point of AB.

(i) Find the volume of the triangular prism $APQRXS$.

(ii) Are the triangular prisms $APQRXS$ and $ABCZXY$ similar? Explain your answer.

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2. The base radius of the solid right circular cylinder A and the base radius of the solid right circular cone B are equal. The heights of A and B are 11 cm and 15 cm respectively. The volume of the solid right circular cone C is equal to the sum of the volume of A and the volume of B. The base radius of C is equal to the base diameter of A. A craftsman finds that the volume of B is 320π cm^3.

(a) Find the base radius of B.

(b) Are B and C similar? Explain your answer.

(c) The craftsman claims that the sum of the curved surface area of A and the curved surface area of B is less than the curved surface area of C. Do you agree? Explain your answer.

3. There are two solid metal spheres. The ratio of the surface area of the smaller sphere to the surface area of the larger sphere is 1 : 4. The radius of the smaller sphere is 12 cm.

(a) Express the volume of the larger sphere in terms of π.

(b) The two spheres are melted and recast into two solid right circular cones R and S. It is given that the height and the base radius of R are 80 cm and 9 cm respectively. Vicky finds that the base radius of S is 18 cm. Vicky claims that R and S are similar. Do you agree? Explain your answer.

END OF ASSIGNMENT