

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 1 – OCTOBER 2013
ROUND 1 VOLUME & SURFACES

ANSWERS

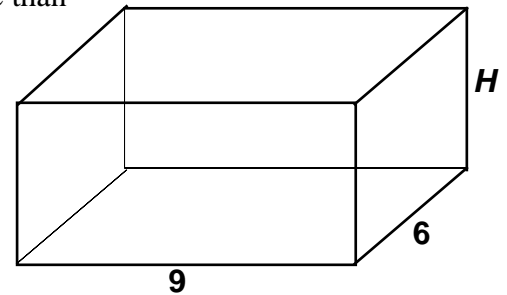
A) _____ feet

B) _____ units³

C) _____ units³

- A) The lateral surface area of a rectangular solid (a box) is 50% more than the sum of the areas of the other two surfaces.

As indicated in the diagram at the right, the dimensions of the base are 6 feet by 9 feet. Compute the height of the box in feet.



- B) The total surface area of a cylinder is 484π square units. The circular base of the cylinder has a diameter which is twice the height of the cylinder. Compute the volume of the cylinder.

- C) A sphere has a surface area of 96π units². A regular hexagon is inscribed in a great circle of this sphere. A pyramid with this hexagonal base has its vertex on the sphere. Compute the maximum possible volume of this pyramid.