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Date: \_\_\_\_\_

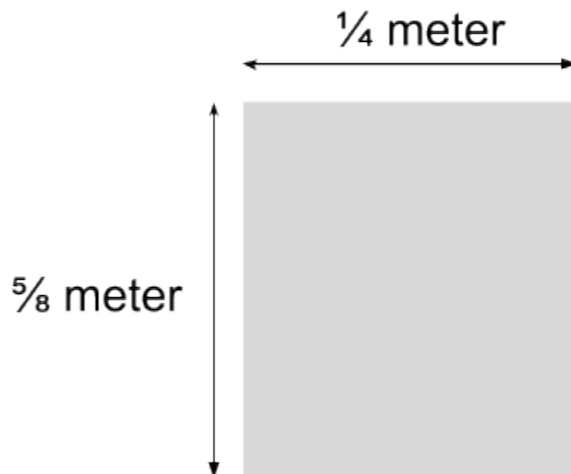


# Rockets and Ratios

SCI.6.3.1, 6.3.2, 6.3.3, 6.21.2, 6.21.3

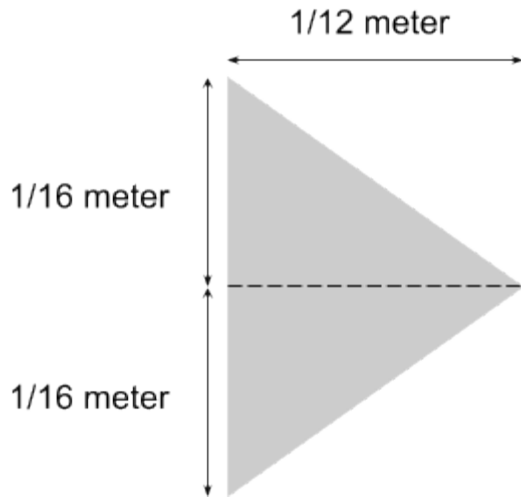


1. The scientists at NASA are on a mission to launch a few new satellites into space, and they need your help to do it! First, the rocket needs to be built. To do this they need to know how much aluminum to order to create the body of the rocket. The rocket body design is the rectangle shown below. How many square meters of material are needed to build the rocket body? Show your work. (Image is not drawn to scale)



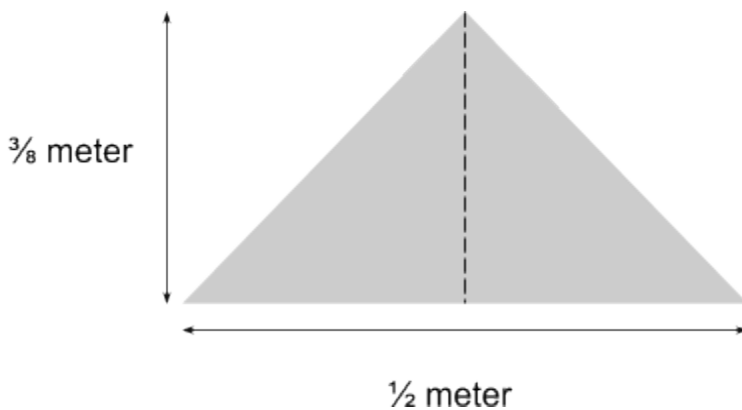
Answer: \_\_\_\_\_  $\frac{5}{32} \text{ m}^2$  \_\_\_\_\_

2. Next, the scientists need to attach the fins of the rocket so it can cut through the air. The design of a rocket fin is shown below. There are 4 fins needed for 1 rocket body. First, write the ratio of fins to rocket bodies. Then, calculate how much aluminum needs to be purchased to build all 4 fins. Show your work. (Image is not drawn to scale)



Answer: \_\_\_\_  $\frac{1}{192} \text{ m}^2$  \_\_\_\_

3. After attaching the fins, the scientists now need to attach the cone to the top of the rocket. The cone design is given below. Calculate the amount of aluminum needed for the area of the cone.



Answer: \_\_\_\_  $\frac{3}{32} \text{ m}^2$  \_\_\_\_

Finally, the rocket is complete! The scientists construct the rocket and set the satellites on board. “We have launch in T-10..9..8..7..6..5..4..3..2...” ...nothing happened? In the rush to launch the rocket the scientists forgot to add fuel! They know that rocket fuel is made by combining 12 parts Carbon with 26 parts Hydrogen. Write this as a ratio so the scientists can fuel the rocket. As a bonus, simplify the ratio!

Answer: \_\_ 12:26 \_\_

Simplified Answer: \_\_\_\_ 6:13 \_

**And finally, we have liftoff!**

