Special Operations Team Instructions

Overview

You need six or more students on the special operations team. Here is what your team does.

1. Use basic geometry and proportions to solve problems in each event of the extravehicular activity (EVA).
2. Talk to teammates about solutions.
3. Make recommendations to the mission commander.
4. Report to the task control team as each problem is solved.

Mission Preparation

1. Go to this web site:
   www3.cet.edu/flashcom/satellite

   Select Special Operations from the dropdown menu. The mission commander will give you the password to log in.
2. The mission commander will send a problem to your team through the computer.
3. One of you must read the problem aloud for the team.
4. Your team must decide how to solve the problem. You can use more than one way to solve it.
5. All of you solve the problem on your own.
6. All of you compare your answers.
7. As a team, decide which answer to report to the mission commander. Send it through the communications officer.
8. Tell the task control team when your team has solved each problem.

Math Concepts You May Use in the Mission

Your special operations team needs to solve several problems faced by the astronauts during the EVA. It is important to solve each problem as quickly as possible and to check your work with your teammates. A tiny math mistake could make a big difference when dealing with a satellite capture!

Here are some math concepts and formulas you might see during the mission:

Vocabulary

area: the amount of surface a figure covers.

circumference: the perimeter of a circle.

complementary angles: two angles whose measures add up to 90 degrees.

diameter: a line connecting two points on a circle and passing through the circle's center.

Pi (∏): for any circle the ratio of the circumference to the diameter; use 3.14 for ∏ in calculations.

radius: a line from the center of a circle to any point on the circle.

supplementary angles: two angles whose measures add up to 180 degrees.

volume: the number of cubic units an object contains.

Formulas

$$\text{Area of a triangle} = \frac{\text{base x height}}{2}$$

$$\text{Volume of a cylinder} = \prod \text{ x radius}^2 \text{ x height}$$

$$\text{Circumference} = \text{distance x} \prod$$

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$