

Lunar Habitat and What's The Difference (WTD)
Case Study 1 Student Worksheets

Instructional Curriculum

Mathematics: Grades 6-9

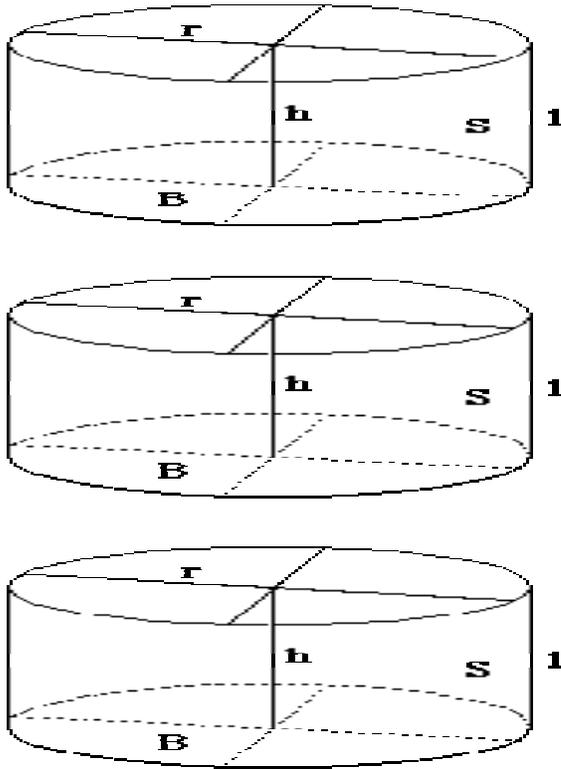
Dmitriy Voloshin

Lunar Habitat	3
Case Study I: Level A Student Worksheet.....	3
Case Study I: Level A Student Worksheet.....	4
Case Study I: Level B Student Worksheet.....	5
Case Study I: Level B Student Worksheet.....	6
Case Study I: Level C Student Worksheet.....	7
Case Study I: Level C Student Worksheet.....	8
Case Study I: Findings Sheet	9

Lunar Habitat

Case Study I: Level A Student Worksheet

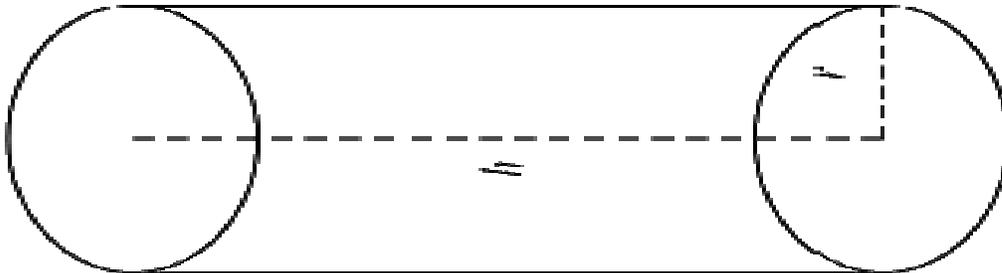
Figure A:



Part A: Consider figure A on the left. In this case, the lunar habitat consists of three cylindrical shapes that are arranged vertically with a stair case connecting each cylinder. Each cylinder represents one floor of the habitat. All three cylinders are congruent which means that they have identical dimensions.

Given that the radius of each cylinder (r) is 10 meters and its height (h) is 3 meters, compute the surface area of this lunar habitat. Do not include the areas of each staircase in your computations.

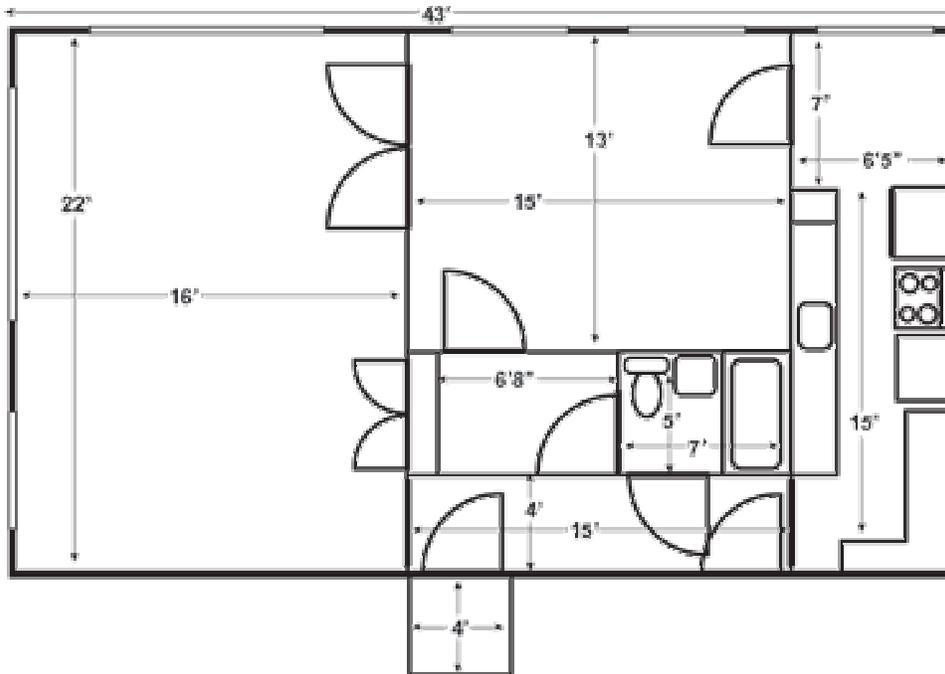
Figure B:



Part B: Consider figure B above. In this case, a typical elongated cylinder is tilted on its side to create a lunar habitat model. Given that the cylinder has a radius (r) of 4 meters and height (h) of 25 meters, compute the surface area of this lunar habitat.

Case Study I: Level A Student Worksheet

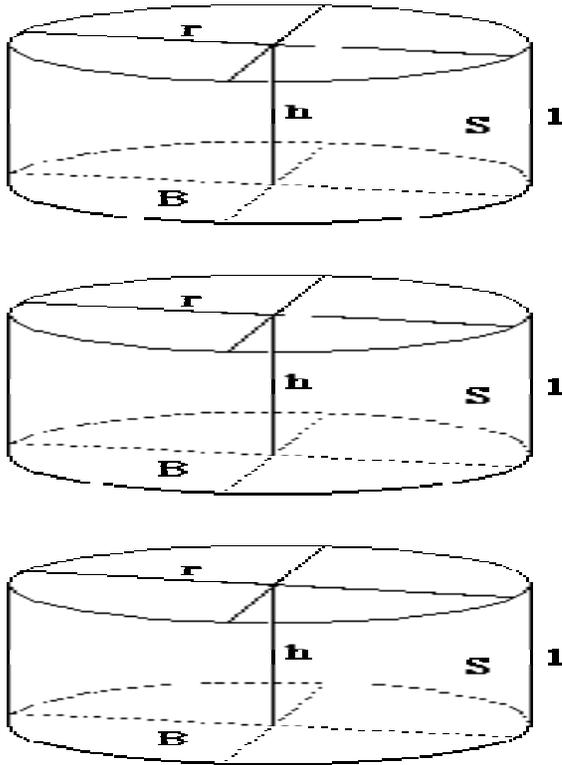
Figure C:



Part C: Consider figure C above. You are seeing a typical floor plan of a one-bedroom apartment. For comparison purposes, compute the total area of this apartment. Make sure to convert all units of measure to the metric system.

Case Study I: Level B Student Worksheet

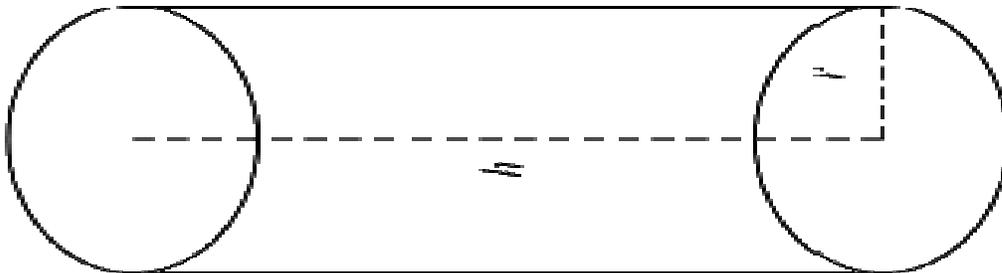
Figure A:



Part A: Consider figure A on the left. In this case, the lunar habitat consists of three cylindrical shapes that are arranged vertically with a stair case connecting each cylinder. Each cylinder represents one floor of the habitat. All three cylinders are congruent which means that they have identical dimensions.

Given that the radius of each cylinder (r) is 10.3 meters and its height (h) is 2.4 meters, compute the surface area of this lunar habitat. Do not include the areas of each staircase in your computations.

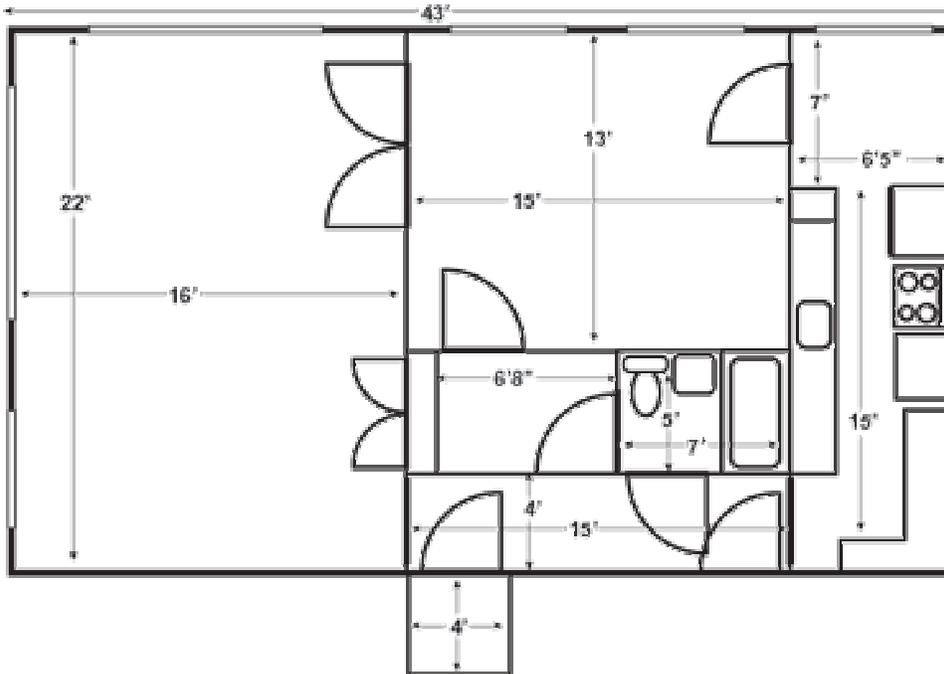
Figure B:



Part B: Consider figure B above. In this case, a typical elongated cylinder is tilted on its side to create a lunar habitat model. Given that the cylinder has a radius (r) of 3.5 meters and height (h) of 26.18 meters, compute the surface area of this lunar habitat.

Case Study I: Level B Student Worksheet

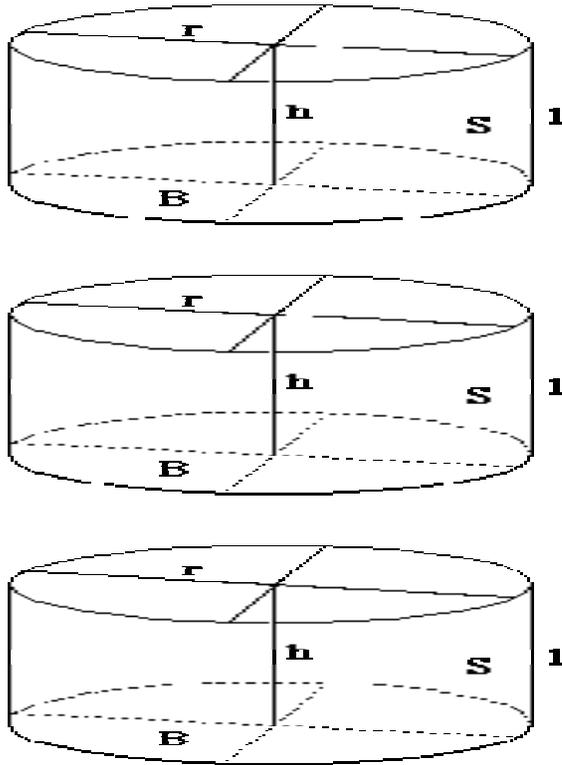
Figure C:



Part C: Consider figure C above. You are seeing a typical floor plan of a one-bedroom apartment. For comparison purposes, compute the total area of this apartment. Present your answer in both square feet and square meters units of measure.

Case Study I: Level C Student Worksheet

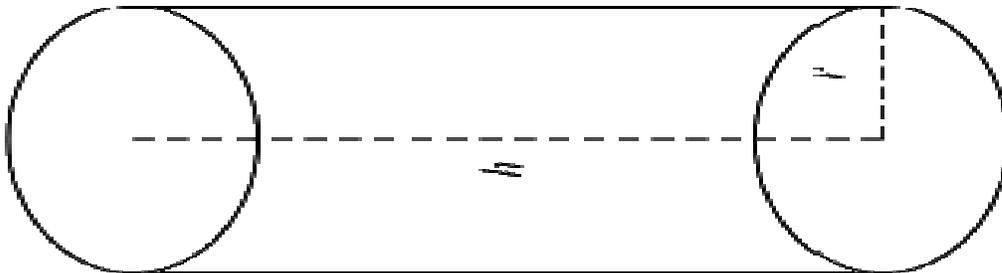
Figure A:



Part A: Consider figure A on the left. In this case, the lunar habitat consists of three cylindrical shapes that are arranged vertically with a stair case connecting each cylinder. Each cylinder represents one floor of the habitat. All three cylinders are congruent which means that they have identical dimensions.

Given that the radius of each cylinder (r) is $9 \frac{3}{4}$ meters and its height (h) is $3 \frac{4}{5}$ meters, compute the surface area of this lunar habitat. Do not include the areas of each staircase in your computations.

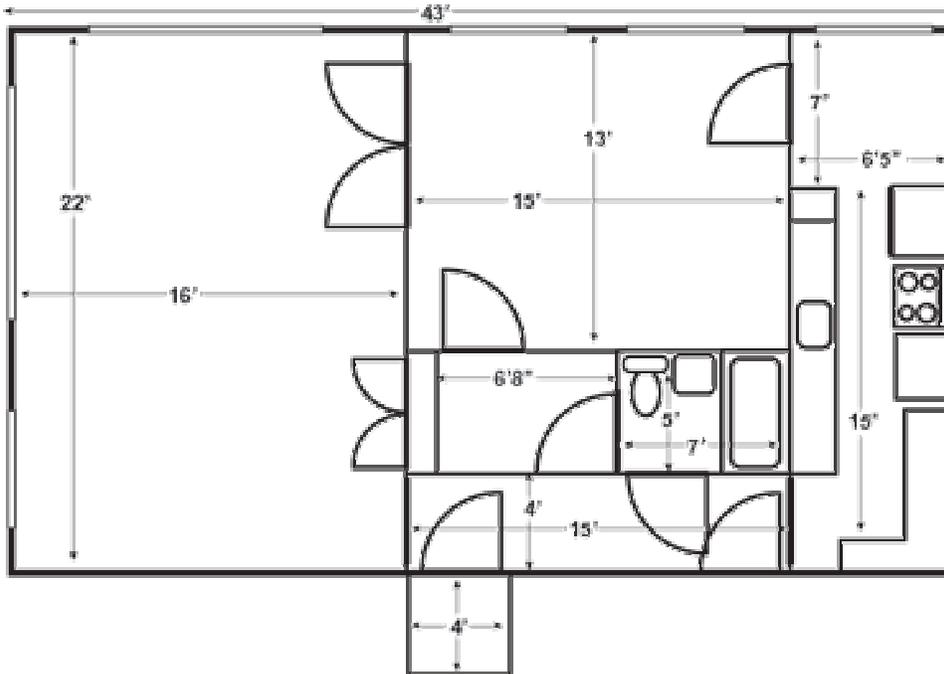
Figure B:



Part B: Consider figure B above. In this case, a typical elongated cylinder is tilted on its side to create a lunar habitat model. Given that the cylinder has a radius (r) of $3 \frac{1}{5}$ meters and height (h) of $27 \frac{9}{10}$ meters, compute the surface area of this lunar habitat.

Case Study I: Level C Student Worksheet

Figure C:



Part C: Consider figure C above. You are seeing a typical floor plan of a one-bedroom apartment. For comparison purposes, compute the total area of this apartment. Present your answer in both square feet and square meters units of measure.

Lunar Habitat

Case Study I: Findings Sheet

Name(s): _____

Level: _____

Period: _____

Date: _____

Directions: Fill out this sheet completely and turn it in with all work to your teacher.

Question	Answer	Reasoning
<i>Question 1:</i> What was the area of figure A?		
<i>Question 2:</i> What was the area of figure B?		
<i>Question 3:</i> Which was the area of figure C?		