3. What is the height of the Saturn V rocket? ______ feet

If the Statue of Liberty is 305 feet tall, how much taller is the Saturn V rocket?

1. Find the price for a t-shirt, a cap and a NASA pin. Add and round to the nearest dollar to estimate the total cost for all three items. If you have $40 to spend on souvenirs, would you have enough to purchase all three items? Explain your response. [3.OA.8]

2. How long was astronaut Alan B. Shepard’s sub-orbital flight aboard the Mercury Redstone rocket? [3.MD.1]
   ______ minutes ______ seconds
   Round to the nearest minute. ______ minutes
   a. If his launch time was 9:34 a.m., what time did he return to Earth?

3. What is the height of the Saturn V rocket? ______ feet
   If the Statue of Liberty is 305 feet tall, how much taller is the Saturn V rocket? [3.NBT.2]

4. Use the ruler below to measure the length and width of a seat on the wooden Lunar Rover Model. [3.MD.4]
   Length: ___________ Width: ___________

5. Which of the following polygons can you identify in the lunar module: square, rectangle, parallelogram, trapezoid and rhombus? Draw the shapes you find below. List common characteristics for the polygons you have drawn. [3.G.1]

   a. How is the trapezoid different from the other quadrilaterals you found? [3.G.1]

6. The lunar rock in the Davidson Center was collected by astronauts Pete Conrad and Alan Bean during the Apollo 12 mission. Would you estimate the rock on display weighs 450 grams or 450 kilograms? [3.MD.2]

7. On Skylab, solar cells are arranged in a 4 by 10 pattern to form each solar panel. How many solar cells are in one solar panel? [3.NBT.3]
   a. How is the trapezoid different from the other quadrilaterals you found? [3.G.1]
   a. Write an equation using the distributive property to find the number of solar cells in all three solar panels. Solve. [3.OA.5]
   b. Assume that each individual solar cell has an area of one square inch. By counting squares, the area of one solar panel is ______ square inches. [3.MD.6, 3.MD.5]
   c. If each individual solar cell on the panel has an area of one square inch, find the total area of all three solar panels shown in the Skylab model at the Davidson Center. [3.MD.7]
   d. The perimeter of one solar panel is ______ inches. Draw a solar panel of a different size or shape that has the same perimeter as the one on Skylab. [3.MD.8, 3.OA.6]
ROCKET ENGINES
1. There are four components of the shuttle stack: orbiter, external tank and two solid rocket boosters. What fraction of the shuttle stack holds the astronauts? [3.NF.1]

CENTAUR
2. Read the information provided in the photo to find out about the NASA Centaur G-Prime. [3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5]

SATURN I [3.OA.1, 3.OA.3, 3.OA.7]
1. How many H-1 engines do you see as you walk beneath the Saturn I Rocket?
   a. How many H-1 engines would be needed to build six Saturn I rockets? Solve using a multiplication sentence.
   b. If there were 56 H-1 engines, how many Saturn I rockets could be built? Write a division sentence and solve.
   c. What multiplication fact can you use to solve this problem?

2. Complete this table to compare the lengths of the following rockets and missiles in Rocket Park. Round the lengths to the nearest foot and to the nearest tens place. [3.MD.3]

ROCKETS AND MISSILES

<table>
<thead>
<tr>
<th>Rockets and Missiles</th>
<th>Actual Length (feet)</th>
<th>Length Rounded to the nearest foot</th>
<th>Length Rounded to the nearest ten feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA Saturn I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Jupiter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Juno II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Redstone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Jupiter-C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Army Mercury - Redstone</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. The total thrust of the NASA Centaur G-Prime was ________. How many thousands are there in the total thrust? ________

b. How many Pratt & Whitney engines were used by the Centaur G-Prime?

c. Use the information you found to determine how many thousands of pounds of thrust were provided by each engine.

d. Use the above information to complete the table.

<table>
<thead>
<tr>
<th>Engines(s)</th>
<th>Thrust (thousands of lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>75</td>
</tr>
</tbody>
</table>

e. Identify the pattern in the table.

ROCKET ENGINES
2. Read the information provided in the photo to find out about the NASA Centaur G-Prime. [3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5]

b. Use the information in the table to create a bar graph of the rocket lengths rounded to the nearest ten feet. [3.MD.3]

1. On May 28, 1959, monkeys Able and Baker rode in the Army-developed Jupiter nose cone for a distance of 1,700 miles. Read the information provided in photo to find out more about their journey:

   a. They experienced weightlessness for _______ minutes.
   b. If their journey lasted 15 minutes, what fraction of the time did they experience weightlessness? [3.NF.1]

   c. Use a number line to represent the fraction. [3.NF.2]

   d. Use the number line to complete this sentence. [3.NF.3]

   e. Use the visual fraction models to explain why the fractions are equivalent. [3.NF.3, G.2]

   f. Use the number line to complete this sentence. [3.NF.3]

   g. Use the number line to complete this sentence. [3.NF.3]

   h. Use the number line to complete this sentence. [3.NF.3]