The External Tank is ________ ft long and ________ ft in diameter. It has a lift-off weight of ________ lbs. The Pathfinder orbiter is ________ ft long, ________ ft high, and has a wing span of ________ ft. It weighs ________ lbs. [N-Q1]

Find the slope of the line between the Jupiter C and the Saturn I. Explain what the slope means in this context. [S-ID7]

Describe the correlation between the weight and thrust. [S-ID8]

Use the slope from above and the point for the Jupiter C to find the equation of the line. [A-CED2]

If the budget for the metal that encases the external tank is $60,000, what is the most the metal should cost per square foot? [N-Q2]

The External Tank is approximately two half spheres at the top and bottom of a cylinder. Find the surface area of the external tank using these formulas.

For a cylinder, the area of the sides is $2\pi rh$.

For a sphere, the area is $4\pi r^2$. [A-REI3]

Make a scatterplot of the weight and thrust below. [F-IF4]

<table>
<thead>
<tr>
<th>Weight (x1000 lbs)</th>
<th>Thrust (x1000 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jupiter C</td>
<td>66</td>
</tr>
<tr>
<td>Juno II</td>
<td>83</td>
</tr>
<tr>
<td>Jupiter</td>
<td></td>
</tr>
<tr>
<td>German V-I</td>
<td></td>
</tr>
<tr>
<td>Saturn I</td>
<td></td>
</tr>
</tbody>
</table>

Find the rate of change in weight/thrust between the Jupiter C and Saturn I [F-IF6, S-ID7]

Approximate the y-intercept of the line of best fit. What does it mean in this context? [F-IF4, F-IF7]

Write an equation for the relationship between thrust and weight using function notation. Then use this function to find the range (weight) when the domain (thrust) is 500,000 lbs. [F-IF2, F-IF1]

Find the slope of the line between the Jupiter C and the Saturn I. Explain what the slope means in this context. [S-ID7]

Find the slope of the line between the Jupiter C and the Saturn I. Explain what the slope means in this context. [S-ID7]

Describe the correlation between the weight and thrust. [S-ID8]

Use the slope from above and the point for the Jupiter C to find the equation of the line. [A-CED2]

Use your equation to predict the approximate weight of a rocket to the nearest unit with a thrust of 500,000 lbs. [A-REI3, A-CED1, F-LE1]

If the budget for the metal that encases the external tank is $60,000, what is the most the metal should cost per square foot? [N-Q2]
Did you know there are different kinds of velocity? Earth Fixed Velocity is velocity as observed from Earth. Space Fixed Velocity is velocity as observed from Space.

Create two parallel box plots on the graph below. [S-ID1]

The ULA Delta IV Med+ (4.2) is currently a launch provider for the U.S. Air Force, Global Positioning System (GPS) and other payloads.

*2. If the payload portion - the top cylindrical portion excluding the nose cone - is approximately 37 feet tall and the payload volume is 4911 ft³, what is the diameter of the payload portion? [A-CED4]

Recall: The volume of a cylinder is \( V = \pi r^2 h \)

Is the new countdown geometric or arithmetic?

If it is arithmetic, what is the common difference?

If it is geometric, what is the common ratio?

With the new countdown, will the rocket ever lift off? Explain why or why not.

This graph comes from the biomedical results of Apollo 11 at the NASA Life Sciences Division Archives.

During what interval(s) is S-IC ascent acceleration increasing?

During what interval(s) is the S-II ascent acceleration increasing?

During what interval(s) is the SIVB ascent acceleration increasing?

How many minutes after liftoff is the Saturn V at maximum acceleration?

What is the maximum acceleration?

What is the average rate of change of the acceleration per second for the interval from 0 to 2.5 minutes?