



# Mission XY

Ever wanted to be an astronaut?  
To see what it's like in space? We need your help!

Astronaut Pete and Astronaut Seb have been sent on a space mission. They have lots to do and many miles to travel. We need you to help them get to Space Station Z and back safely. You will need to use your mathematical brain to help them solve problems along the way.



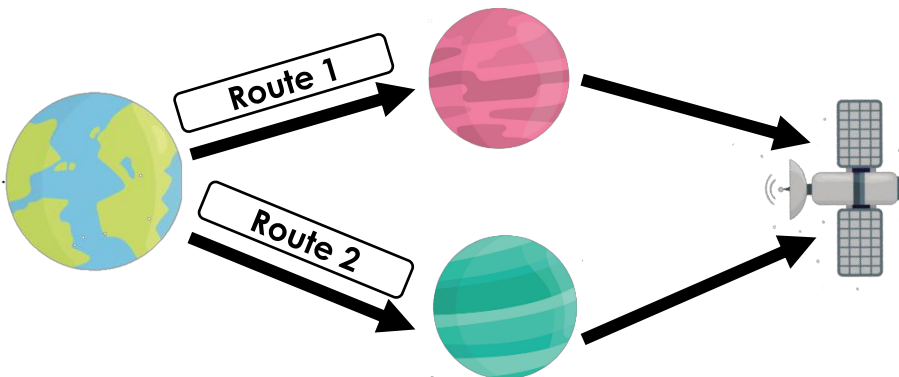
Watch out for those pesky little green aliens who will try to wreck the mission.

Pete and Seb are on their way to Space Station Z. They need to get there but they are running out of fuel. They must take the shortest route to save fuel.

1. Work out the shortest route the astronauts need to take in order to reach Space Station Z to refuel.

### Route 1

Earth to Mars = 3,454 miles  
Mars to Space Station Z = 2,474 miles



### Route 2

Earth to Jupiter = 2,456 miles  
Jupiter to Space Station Z = 3,374 miles

Route 1 =  
  
miles

Route 2 =  
  
miles

The shortest route to take is  
Route:

**Reasoning and Problem Solving**  
**Addition and Subtraction Consolidation – Year 4**

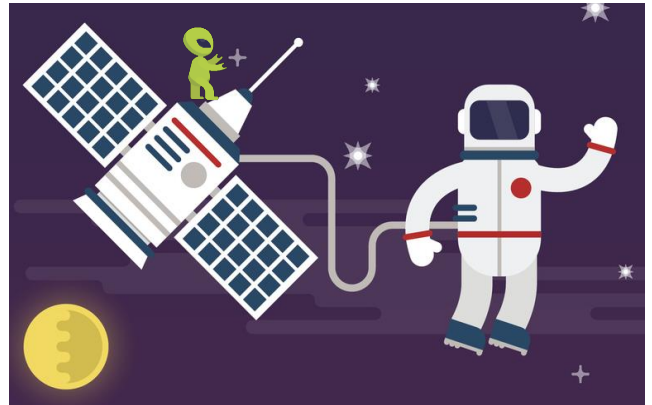
2. The astronauts have 5,915 miles worth of fuel in their rocket.  
How much fuel will they have left over once they reach Space Station Z?


*Well done!*

You have managed to get the astronauts to Space Station Z without running out of fuel.  
Now the mission begins!

Pete and Seb need to get their space suits and helmets on and take some readings from outside the station. They need to read the number on the solar sensor (This tracks the sun's energy on Earth all the way from space – super cool space stuff).

There is a problem!  
Some of the numbers appear to have been damaged.  
Those pesky aliens!  
Work out the missing number so that Pete and Seb can send the information back to Earth.



3. The last reading that was taken was 7,392.  
4,536 is the new reading.  
How much solar energy has been used?

$$\boxed{7,392} - \boxed{\phantom{0000}} = \boxed{4,536}$$

Good work team, you have worked out the new reading.  
Now lets get back to the rocket.

**Reasoning and Problem Solving**  
**Addition and Subtraction Consolidation – Year 4**



The lock on the door seems to be stuck!  
“What’s the problem?” Seb asks Pete.  
“I think the lock has been reset, who could have done that?” replies Pete.  
“I have a sneaky feeling we have alien company!”

The astronauts need to reset the lock and they’re going to need your help. The lock needs two special numbers.

4. We need to find two numbers that when added have an estimated answer of 5,800.

Original Number	Rounded to the nearest 100
3,367	
2,646	
4,015	
5,280	
3,906	
2,431	

The two original numbers are:

Awesome work, the door has opened. Now, lets get back to Earth.



Reasoning and Problem Solving  
Addition and Subtraction Consolidation – Year 4

Ok, team – so far so good! Let's get this rocket on the go.

In order to start the engine, Pete needs your help.

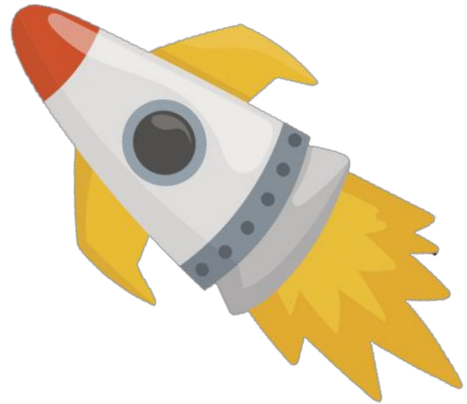
5. The table needs completing so Pete can start the return to Earth:

Number	Subtract 10	Add 100	Subtract 1,000
3,986	→	→	→
7,321	→	→	→
5,210	→	→	→

**5... 4... 3... 2... 1... Blast off!**

*You did it!* I knew you could.

Now buckle up those seat belts, it's home time.



6. One last challenge, before you go. Pete has checked the fuel level, there are 4,653 miles left. The journey home is 3,827 miles. Pete said that they will have 1,226 miles left in the tank when they return to Earth. Seb said that he is wrong. Work out who is right and how much fuel will be left in the tank.

Thank you for all your help today. Hope you enjoy your next mission.

**Reasoning and Problem Solving**  
**Addition and Subtraction Consolidation – Year 4**

1. Route 1 =  $3,454 + 2,474 = 5,928$  miles  
 Route 2 =  $2,456 + 3,374 = 5,830$  miles  
**Route 2** is the shortest route.

2.  $5,915 \text{ miles} - 5,830 \text{ miles} = 85 \text{ miles worth}$

3.

$$\boxed{7,392} - \boxed{2,856} = \boxed{4,536}$$

4.

Original Number	Rounded to the nearest 100
3,367	<u>3,400</u>
2,646	<u>2,600</u>
4,015	<u>4,000</u>
5,280	<u>5,300</u>
3,906	<u>3,900</u>
2,431	<u>2,400</u>

$3,400 + 2,400 = 5,800$

The two original numbers are:

$3,367$

$2,431$

5.

Number		Subtract 10		Add 100		Subtract 1,000
3,986	→	3,976	→	4,076	→	3,076
7,321	→	7,311	→	7,411	→	6,411
5,210	→	5,200	→	5,300	→	4,300

6. **Pete is wrong and Seb is correct.** There will be 826 miles of fuel left in the tank. Pete did not exchange in the hundreds column; he subtracted 8 from 6 and gave the incorrect answer of 2. This then made his subtraction in the thousands column incorrect too.