Question 1

Which route should we pick? Show your work.
Route 2

Route 1: (0.2 * 2) / 3 + (0.3 * 2) / 5 + (0.5 * 2) / 2 = 0.753
Route 2: (0.4 * 1.8) / 3 + (0.2 * 1.8) / 5 + (0.4 * 1.8) / 2 = 0.672
Route 3: (0.5 * 3.1) / 3 + (0.4 * 3.1) / 5 + (0.1 * 3.1) / 2 = .92

We have now found out some additional information.
Route 1 contains a crater. If the wall of the crater is intact, we can go through it. If the wall has been damaged, we will need to go around, which will add 45 minutes to our journey. There is a 30% chance that the wall is damaged.
Route 2 contains a bridge. If that bridge is damaged, we will need to repair it, which will add 1 hour to our time. There is a 60% chance that the bridge is out.

Now which route should we pick? Show your work.
Route 3 is the best route to pick

Route 1: 1.26 + (0.3 * 0.75) = 1.485
Route 2: 0.96 + (0.6) = 1.56
Route 3: Unchanged = .92

Now suppose that we can use a satellite to find out whether the terrain in route 3 is smooth. Is this helpful? What is the value of this information? Expressed differently, how long are we willing to wait for this information from the satellite?

Yes this information is helpful. With this, we know the expected time is 3.1/5 = 0.62. We know if it is not smooth then the expected time is 3.1 / 3 (0.5/0.6) + 3.1 / 2 * (0.1 / 0.6) = 1.12. If we subtract the two, we get .5. Which means we can wait for half an hour for the information from the satellite.

Now put this problem into ChatGPT. Is it able to solve it correctly? If not, where does it make mistakes?

For the first question, (assuming my answer is correct) it got the right answer, which was route 2, but the calculations were different than mine.

For the second question, it was the same thing. It got the same answer as me, which was route 3, but its calculations were different.

Finally, the same thing happened. We both got the same answer yet our calculations were different.