Find the Rule

Annotation

Jess can graph a linear relationship with a negative, decimal gradient, showing appropriate use of scale and units for the context given. She can use her graph to solve a problem and she can explain her thinking.

Problem: Find the Rule

The teacher poses the following problem.

A chef has a 55.15 kg bag of rice in the pantry. Each day he measures out and uses exactly

0.6 kg of rice. The amount of rice remaining, R, in the bag can be described by the following relationship:

R = 55.15 – 0.6 d

where d stands for the number of days the bag has been used.

Show the relationship between R and d, on a set of axes. Use this graph to find how many days the bag of rice will last before it is empty.

Student Response
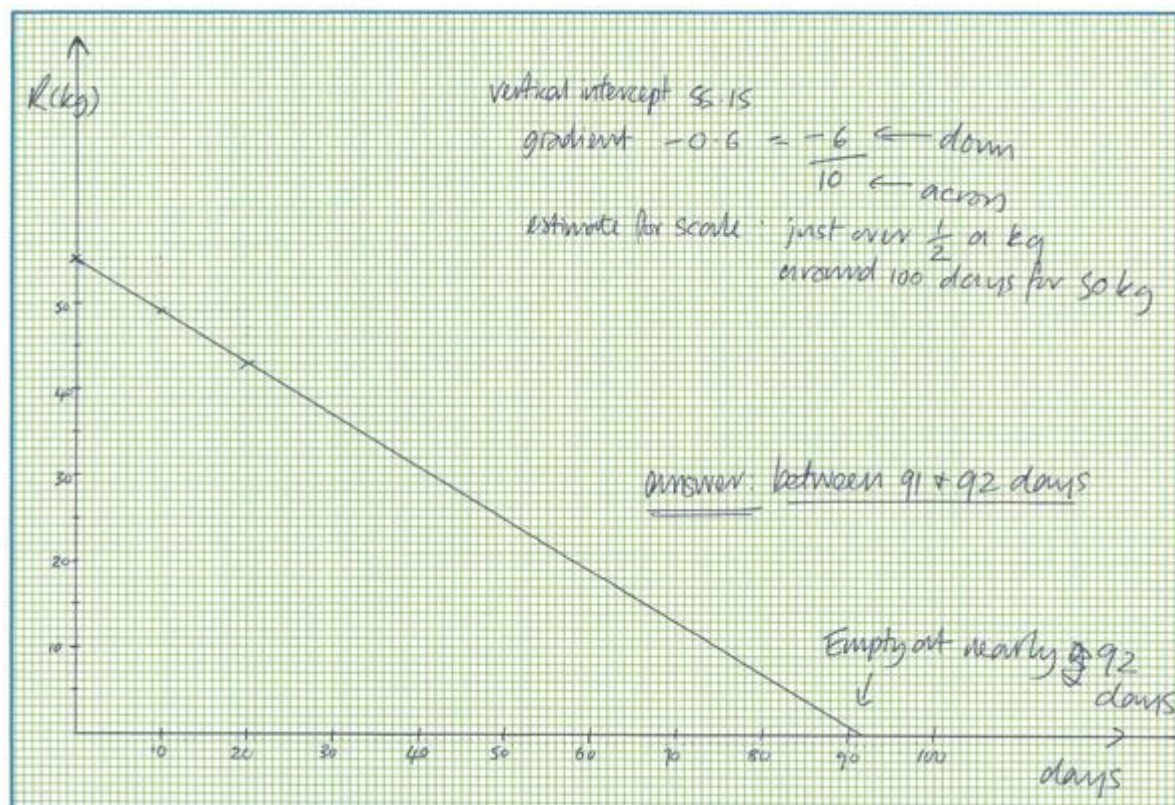
Teacher: So tell me what you've done to get your answer.

Jess: Well, first I knew I had to draw a graph 'cos the question was talking about axes. I know the kgs have to go up to 55 and a bit, but I didn't know how long to make the days. So I did a rough guess on taking half a kg out of 50kg would take as long as taking 1 kg out of a bag of 100...that would take 100 days. I know my answer is going to be somewhere around that mark so my day axis goes to at least 100.

Teacher: So once you'd made your axes, how did you graph the relationship?

Jess: Well I thought it would be like all those linear graphs we've been doing. You know? y = mx + c? But without xs and ys, it has Rs and ds. So I looked at how the R is on its own like the y and that's my vertical axis. The d has a number in front of it...the gradient. The gradient is a yukky one. It's negative and a decimal. I made it into a fraction so that I could go up and across. But its negative so I went down and across. I started at the c...I mean 55.15. Well I couldn't mark that on clearly so I'm just a tiny bit above the 55 on the graph.

Teacher: And then how did you draw your graph in.

Jess: Well once I had the first point, I really only needed one more, so I counted six squares down for every ten across...and put a line through it.

Teacher: But I can see more than those two points clearly marked on the graph.

Jess: Yeah, well, I knew my answer would be where the line goes through the axis but my ruler kept wobbling about and I decided I needed more points to be accurate. So I did the six down and ten across thing again.

Teacher: You said your answer was where your crossed the axis. Which axis?

Jess: The days. We want to know the number of days when the Rice is zero. So that's where you cross the days line. Just before 92, but really after 91 days there isn't enough rice for a whole extra day.