



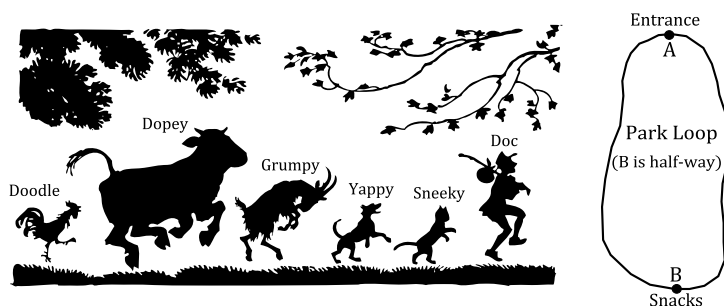
Problem of the Week

Problem B and Solution

Doc and Friends Go for a Walk

Problem

Doc takes his menagerie on a long walk, parading along a 2 km loop around the park. Doc walks at a leisurely 4 km per hour, as do Sneeky, Yappy, and Doodle. But Grumpy and Dopey walk, in the same direction, at 6 km per hour.



- If everyone starts at the entrance, walking in the same direction, where will Doc and his group be after $\frac{1}{2}$ hour? Where will Grumpy and Dopey be?
- If they all walk for $2\frac{1}{2}$ hours, how many times will Grumpy and Dopey pass by Doc and his friends Sneeky, Yappy, and Doodle?

Solution

- After $\frac{1}{2}$ hour, Doc, Sneeky, Yappy, and Doodle will have travelled $\frac{1}{2} \times 4 = 2$ km, and thus will be back at the entrance **A**. But Grumpy and Dopey will have travelled $\frac{1}{2} \times 6 = 3$ km, so they will already be at **B**, half-way around the loop for the second time.
- At the end of 1 hour, Doc's group will be back at **A**, and so will Grumpy and Dopey, so they will pass by. The second hour will just be a repeat of the first hour, so Grumpy and Dopey will pass Doc's group again at **A** after 2 hours. At the end of $2\frac{1}{2}$ hours, the positions will be as they were in part a). So Grumpy and Dopey pass by Doc's group twice in $2\frac{1}{2}$ hours.

For Further Thought

How would your solution change if they two groups were walking in opposite directions along the path?

