

Performance Task(s)

Task 1 – Candle Heights

Nadia has a **tall thin** candle and a **short thick** candle.

The tall, thin candle is 40 centimetres tall. It loses 3 centimetres in height for each hour it burns. Here is a formula you can use to compute the height of the tall, thin candle after it burns for a given number of hours: $h = 40 - 3x$, where x represents the number of hours that the candle burns and h represents the height of the candle.

- a) What is the height of the **tall thin** candle after it has burned for 4 hours? Explain your answer.

The **short thick** candle is 15 cm tall. It loses one centimetre in height for each hour that it burns.

- b) Create a formula to compute the height of the **short thick** candle after it burns for a given number of hours.
- c) Which of the two candles lasts longer: the **tall thin** candle or the **short thick** candle?
- d) Nadia thinks that if the **tall thin** candle and the **short thick** candle are lit at the same time and allowed to burn continuously, at one point in time they will be exactly the same height. Is Nadia correct? Justify your thinking. Support your solution with tables and graphs.

