Proportional Reasoning: Book One, Levels 3+-4+

The Caves of Anawheku

You need 🚺 a calculator or spreadsheet program

Activity One

The caves of Anawheku contain lots of beautiful stalactites and stalagmites.

Geologists have measured these three pairs and their rates of growth per year. (Lengths and heights are in millimetres; growth is in millimetres per year.)

- 1. How much faster is stalactite i growing than the stalagmite under it? (Assume that growth is steady.) Give reasons for your answers.
- 2. a. How long will stalactite i be 100 years from now?
 - **b.** How high will stalagmite **ii** be in 100 years?
 - c. How much closer will the pair be to each other in 100 years?
 - d. How many years will it be before they touch?
- 3. Which of the three pairs of stalactites and stalagmites will touch first?
- 4. Which of the pairs of stalactites and stalagmites is oldest? Youngest?
- 5. How many years will it be before stalagmites iv and vi are the same height?



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Activity Two

Here are another three pairs of stalactites and stalagmites from the caves of Anawheku.

A careless geologist forgot to note some of the details. Work out:

- a. the yearly growth of stalactite i
- b. the height of stalagmite iv
- c. the yearly growth of stalagmite vi.

