



## Problem of the Week

### Problem A and Solution

#### Measure Me

#### Problem

Arezoo, Femke, Jackson, Nya, and Elisabeth made a table that recorded their heights at different stages of their lives.

Name	Height at Birth	Height at Age 6	Adult Height
Arezoo	44 cm	106 cm	1.51 m
Femke	47 cm	104 cm	153 cm
Jackson	49 cm	108 cm	2 m
Nya	48 cm	1.11 m	189 cm
Elisabeth	52 cm	1 m and 19 cm	1.84 m

- (a) Who grew the most between birth and age 6? Who grew the least between birth and age 6? Justify your answers.
- (b) Using estimation, arrange the list of friends from least growth to most growth from age 6 to adulthood.

#### Solution

- (a) One way to solve this is to convert all of the measurements into centimetres and then find the difference between each person's height at age 6 and at birth.

Name	Height at Birth	Height at Age 6	Height Difference
Arezoo	44 cm	106 cm	$106 - 44 = 62$ cm
Femke	47 cm	104 cm	$104 - 47 = 57$ cm
Jackson	49 cm	108 cm	$108 - 49 = 59$ cm
Nya	48 cm	111 cm	$111 - 48 = 63$ cm
Elisabeth	52 cm	119 cm	$119 - 52 = 67$ cm

Elisabeth grew the most between birth and age 6.  
Femke grew the least between birth and age 6.



- (b) We will estimate the growth of each person by rounding numbers to the nearest 10 cm.

Name	Approximate Height at Age 6	Approximate Adult Height	Approximate Difference
Arezoo	110 cm	150 cm	$150 - 110 = 40$ cm
Femke	100 cm	150 cm	$150 - 100 = 50$ cm
Jackson	110 cm	200 cm	$200 - 110 = 90$ cm
Nya	110 cm	190 cm	$190 - 110 = 80$ cm
Elisabeth	120 cm	180 cm	$180 - 120 = 60$ cm

When we list the friends in order by approximate growth between age 6 and adulthood, from least growth to most growth, we get:

Arezoo, Femke, Elisabeth, Nya, and Jackson

It turns out that if we determine the actual difference between each person's adult height and height at age 6, and then list the friends in order from least growth to most growth, we would get the same ordering. However, this will not always be the case. For example, if Arezoo's adult height had been 1.54 m and Femke's adult height had been 151 cm, then the order when approximating would have been the same as above, but the actual order would have been Femke, Arezoo, Elisabeth, Nya, Jackson.