

**Stage 3 ★****Mixed Selection 3 - Solutions****1. Roman distances**

$$8 \text{ stadia} = 8 \times 125 \text{ passus} = 8 \times 125 \times 5 \text{ pedes} = 5000 \text{ pedes}$$

So Marcus has to walk 5000 *pedes*. 1 circuit of his atrium is  $50 \times 4 = 200$  *pedes* long, so he has to walk round his atrium  $\frac{5000}{200} = 25$  times.

In Roman numerals, 25 is XXV.

**2. Walking in the mountains**

Before lunch Peter and Heidi have walked for 60 minutes covering a distance which the sign indicates should take 1 hour and 40 minutes. So the pair take only  $\frac{60}{100} = \frac{3}{5}$  of the time indicated by the sign.

They stop for 15 minutes, then cover the remaining distance in  $3/5 \times 75 = 45$  minutes.

The journey takes  $60 + 15 + 45 = 120$  minutes in total, so they reach Salzbau at 2pm.

**3. Thunder and lightning**

The distance is roughly  $6 \times 330 \approx 2000m$ .

**4. Dean's mountain**

On the way up Dean runs at 8km/h for 1 hour.

The distance is therefore: Distance = 8 km/h  $\times$  1 hour = 8 km.

On the way down, he runs at 12km/h.

The time is therefore:  $8/12 = 2/3$  hours, so it takes Dean 40 minutes to run down the mountain.