Question 2(a)

David weighs 88kg. The average male triathlete of his height weights 83kg. If David aims to reach this weight, what percentage decrease is required?

The image below shows represents David's required weight decrease.

This decrease is:

$$88\text{kg} - 83\text{kg} = 5\text{kg}$$

To find the percentage degrease, we first write the degrease as a fraction of David's original weight and then multiply this fraction by 100 to change it to a percentage.

$$\%\text{Decrease} = \frac{\text{Decrease}}{\text{Original Weight}} \times \frac{100}{1} = \frac{5\text{kg}}{88\text{kg}} \times \frac{100}{1} = 5{\cdot}68\%$$

For David to reach his target he must lose 5·68% of his original weight.

Question 2(b)

Mary's house was worth €200. Mary increases the value of her house by 15% by building a conservatory. She then increased its value by a further 10% by repaving the driveway. Find the total percentage increase in value.

Building a conservatory increased the value of Mary's house to:

$$€200000 \times 1{\cdot}15 = €230000$$

Repaving the driveway increased the value of Mary's house to:

$$€230000 \times 1{\cdot}1 = €253000$$

The total increase in the value of her house is:

$$€253000 - €200000 = €53000$$

The % increase in the value of her house is:

$$\%\text{Decrease} = \frac{\text{Increase}}{\text{Original Value}} \times \frac{100}{1} = \frac{€53000}{€200000} \times \frac{100}{1} = 26{\cdot}5\%$$