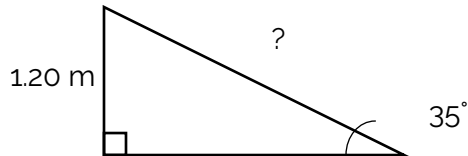


Zookeeper Problems Answer Key

1. Weight of fish Loki needs to eat in one day:
 $8.74 \text{ kg} \times 0.15 = 1.311 \text{ kg}$

How many herrings is that:
 $1.311 \text{ kg} \div 0.057 \text{ kg} = 23 \text{ herrings}$

2. Draw a diagram:



$$\sin(\alpha) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Need to know the length of the hypotenuse (ramp), so rearrange and substitute values:

$$? = \text{hypotenuse} = \frac{\text{opposite}}{\sin(\alpha)} = \frac{1.20 \text{ m}}{\sin(35^\circ)} = 2.09 \text{ m}$$

3. Mean = $\frac{12.2 + 13.4 + 11.7 + 10.8}{4} = 12.0 \text{ kg}$
Median = $\frac{13.4 + 10.8}{2} = 12.1 \text{ kg}$

The underweight cubs are those who weigh less than 11.8 kg: Tiberius who weighs 11.7 kg and Minimus who weighs 10.8 kg

4. First figure out how many calories from veg and how many from meat:
 $20,000 \div 4 = 5,000$
Veg = $3 \times 5,000 = 15,000 \text{ calories}$
Meat = $1 \times 5,000 = 5,000 \text{ calories}$

Now count up the calories from different kinds of veg and meat so they add up to the above. One example:

Veg:

20 cabbages = $20 \times 300 = 6,000 \text{ cal}$
40 carrots = $40 \times 25 = 1,000 \text{ cal}$
50 parsnips = $50 \times 50 = 2,500 \text{ cal}$
30 apples = $30 \times 100 = 3,000 \text{ cal}$
20 sweet potatoes = $20 \times 125 = 2,500 \text{ cal}$

Total = 15,000 cal from veg

Meat:

10 trout = $10 \times 300 = 3,000 \text{ cal}$
1 chicken = $1 \times 2,000 = 2,000 \text{ cal}$
Total = 5,000 cal from meat

