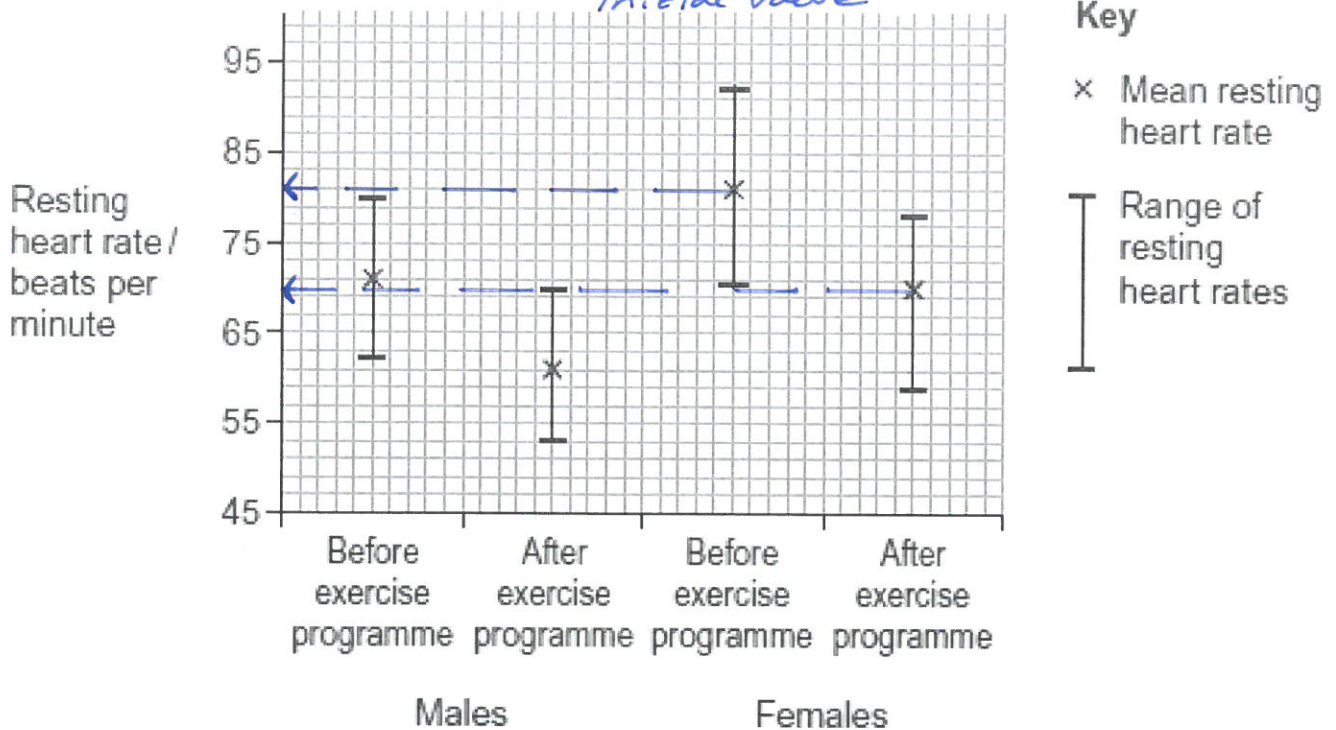


Percentage Change Questions

Always

① work out the change / difference

* ② $\frac{\text{change}}{\text{initial value}} \times 100$



1.

- (a) Calculate the percentage decrease in the mean resting heart rate of females after the exercise programme. Show your working.

change = $81 - 70 = 11$

$\frac{11}{81} \times 100 = 13.58\% / 13.6\%$

care with rounding
↓

- (b) The scientists used the percentage change in the mean resting heart rate after the exercise programme to compare the results for males and females.

Explain why they used percentage change in the resting heart rate.

- allows comparison
- of heart rates between male + females

(2)

so price change from £1.00 to £1.10

- * ① change = $1.10 - 1.00 = 0.10$
② $\frac{0.1}{1.00} \times 100 = 10\%$

2.

Table 1

Trial	Animal organ	Mean amount of oxygen used, in the absence or presence of cyanide, per hour / arbitrary units		
		No cyanide	10^{-4} mol dm $^{-3}$ cyanide	10^{-2} mol dm $^{-3}$ cyanide
A	Sheep liver	2.7	2.5	0.7
B	Sheep kidney	14.1	9.9	1.9
C	Ox liver	1.9	1.5	0.8
D	Rat kidney	20.7	18.8	2.3
E	Rat liver	10.5	10.0	1.9
F	Guinea pig kidney	16.8	14.4	1.9

- (a) Calculate the percentage difference in oxygen use for 'rat liver' (Trial E) between a cyanide concentration of 10^{-4} and 10^{-2} mol dm $^{-3}$.

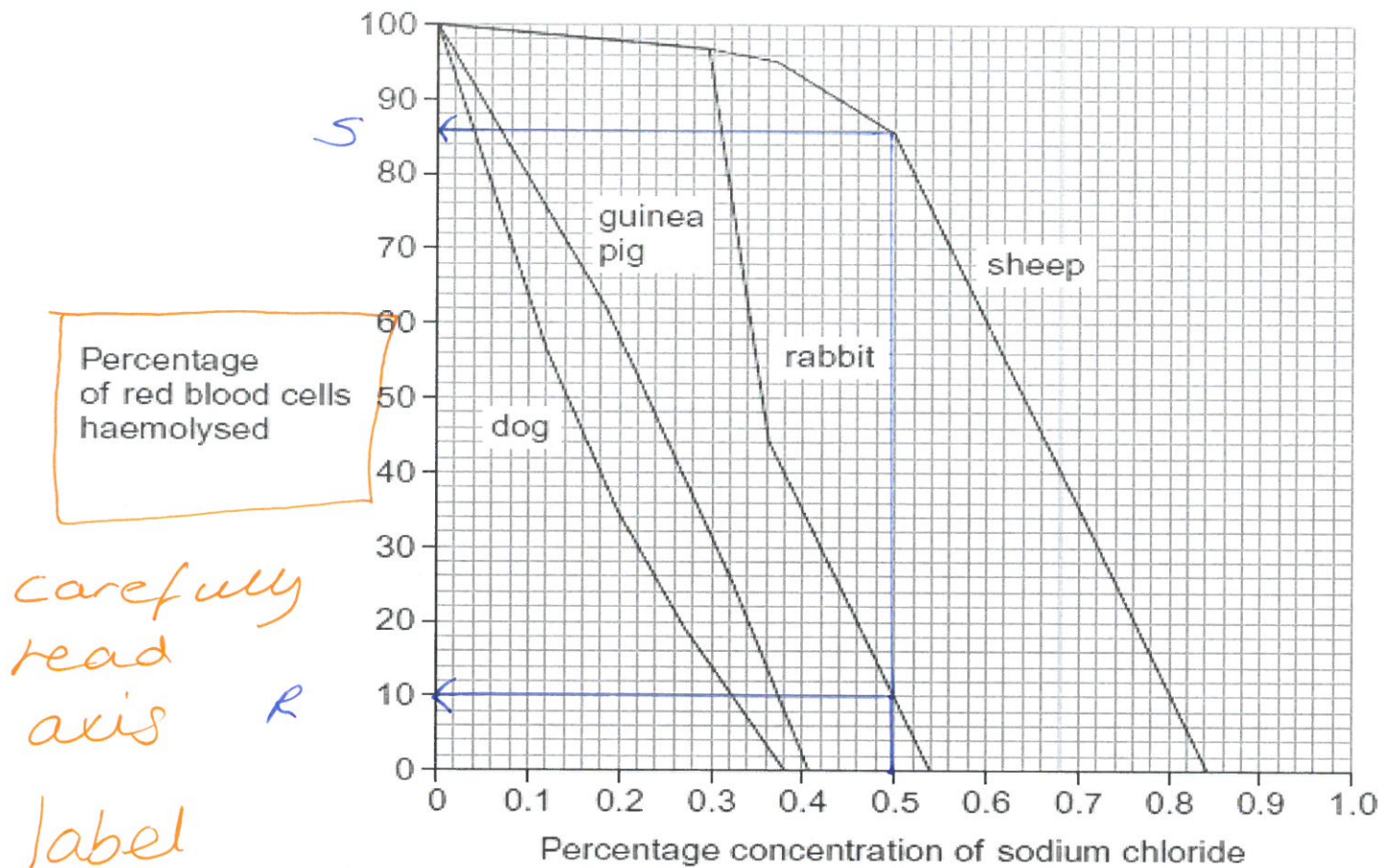
• change $10 - 1.9 = 8.1$

• $\frac{8.1}{10} \times 100$

Percentage difference = 81%

(2)

3. figure shows the scientists' results.



Calculate the difference in the percentage of haemolysed cells between sheep and rabbit at a sodium chloride concentration of 0.5%.

• change $86 - 10 = 76$

76%

4. Large insects contract muscles associated with the abdomen to force air in and out of the spiracles. This is known as 'abdominal pumping'. The table shows the mean rate of abdominal pumping of an insect before and during flight.

Stage of flight	Mean rate of abdominal pumping / dm ³ of air kg ⁻¹ hour ⁻¹
Before	42
During	186

- (a) Calculate the percentage increase in the rate of abdominal pumping before and during flight. Show your working.

• change $186 - 42 = 144$

• $\frac{144}{42} \times 100 = 342.8$
or

42

Answer 343% %

(2)

1 mark for

42 as denominator