

YOU & MATHS The world's largest sheep ranch is located in Australia. There are three times as many sheep as kangaroos on the ranch, for a total of 87,000 animals. How many sheep are there on this ranch?

(CAN John Abbott College, Final Exam, 2000)

Let's call S the number of sheep and K the number of kangaroos.

We know: *there are three times as many sheep as kangaroos on the ranch*, which in mathematical language is:

$$S = 3K,$$

that is:

$$K = \frac{S}{3}.$$

We also know: *for a total of 87,000 animals*, which translates to:

$$S + K = 87\,000.$$

Substituting the first equation into the second, we get:

$$S + K = S + \frac{S}{3} = \frac{4}{3} \cdot S = 87\,000,$$

and therefore:

$$S = \frac{3}{4} \cdot 87\,000 = 3 \cdot 21\,750 = 65\,250.$$