

# Answers to self-assessment questions

## 5 Cell and nuclear division

5.1 The chromosomes are arranged in order of size.

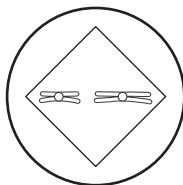
5.2 a i 92 chromatids (at this stage the cell is, technically,  $4n$ )

ii 92 DNA molecules (each chromatid contains one DNA molecule)

iii 46 chromatids (the diploid number)

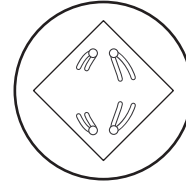
iv 92 chromatids

b i



metaphase

ii



anaphase

c To hold chromatids together and to attach chromosomes to the spindle.

d Nine cells out of 75 000 were undergoing mitosis. Therefore mitosis occupies  $\frac{9}{75\,000}$  of the cell cycle. Mitosis lasts one hour. Therefore cell cycle =  $\frac{75\,000}{9}$  hours long = 8333 hours =  $\frac{8333}{24}$  days = 347 days. (Cell cycles vary in length in adult animals from less than eight hours to more than one year.)