Mitosis and Meiosis **Answers**

1. Read the information about mitosis and meiosis. In each box, write the number of chromosomes that would be found in the cell at that stage in the process.

Mitosis happens in all cells in the body and is used for growth and repair.

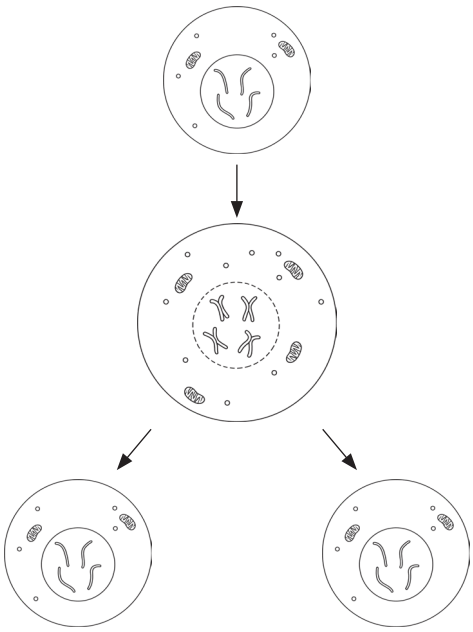
Human body cells contain 46 chromosomes, these are found in 23 pairs.

46

Before division, the DNA replicates, this means there are two copies of each of the 46 chromosomes.

One copy of each chromosome is pulled to either end of the cell and the nucleus divides. The cytoplasm and cell membranes then divide to form two cells that are identical to the original cell.

46



Meiosis produces gametes and happens only in the testes and ovaries.

Meiosis begins from a human body cell in the testes or ovaries.

46

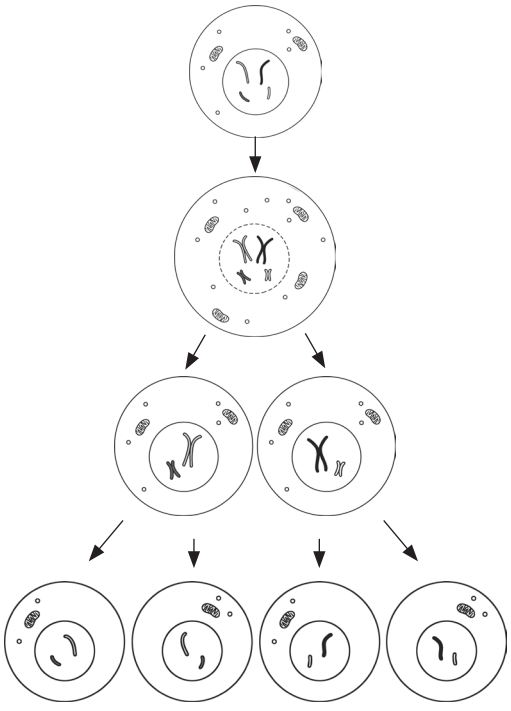
Before division, the DNA replicates, this means there are two copies of each of the chromosomes.

In the first division, one chromosome from each pair is pulled to either end of the cell and the cell divides.

46

In the second division, one copy of each chromosome is pulled to either end of the cell and the cell divides again. This forms four non-identical cells (gametes), each with half as many chromosomes as the original cell.

23



2. Tick **one** box in each row to show whether the statement describes meiosis or mitosis.

   Use the information on the previous page to help.

	Meiosis	Mitosis
Produces four daughter cells.	✓	
Daughter cells are genetically identical.		✓
The chromosome number of the daughter cells is the same as the parent cells.		✓
The cell divides twice.	✓	
Produces gametes.	✓	
Required for sexual reproduction.	✓	

In **compare** questions, you need to describe the similarities and/or differences between things, not just write about one. You need to write something about X compared to Y. So, you might write a statement about mitosis and then say how meiosis is different or similar.

3. Compare mitosis and meiosis. Use the information in the table to help.

Meiosis produces gametes whereas mitosis is used for growth and repair.

Mitosis happens in all cells; however, meiosis only happens in the reproductive organs/testes/ovaries.

Meiosis is used in sexual reproduction while mitosis is used in asexual reproduction.

In meiosis, there are two divisions while in mitosis there is only one division.

Four cells are produced during meiosis but only two cells are produced during mitosis.

Meiosis produces daughter cells with half the number of chromosomes while mitosis produces daughter cells with the same number of chromosomes.

Meiosis introduces genetic variation/produces non-identical daughter cells. Mitosis produces clones/identical daughter cells.