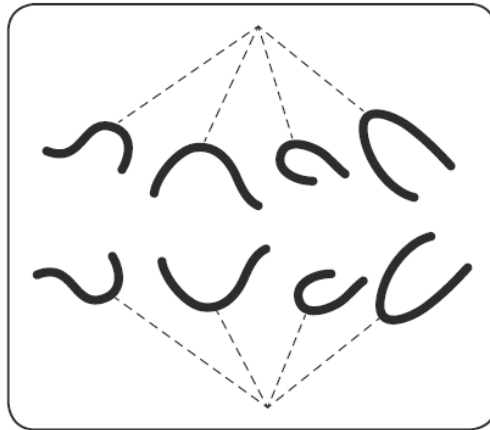


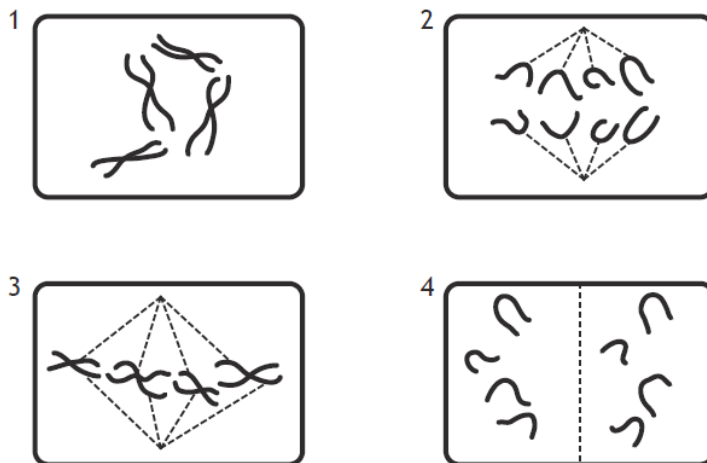
The diagram below shows one of the stages of mitosis in the root tip of a plant.



Which of the following statements describes the stage shown?

- A Chromosomes line up at the equator of the cell
- B Daughter chromosomes gather at the ends of the cell
- C Chromosomes become visible as pairs of identical chromatids
- D Spindle fibres pull chromatids to opposite poles of the cell

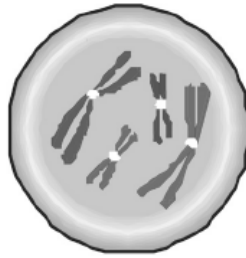
The following diagrams show a cell at four different stages of mitosis.



The correct order of the stages of mitosis is

- A 1,3,2,4
- B 2,3,4,1
- C 3,2,1,4
- D 4,1,2,3.

(a) The diagram below represents a cell in an early stage of mitosis.



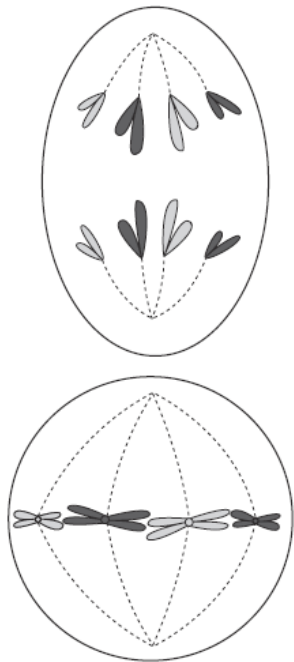
(i) State the number of chromosomes present in this cell. 1

(ii) State how many chromosomes will be present in each of the two cells produced by the process. 1

(b) Name a site of mitosis in plants. 1

(a) The diagrams below show two stages of mitosis in cells.

Draw **one** straight line from each diagram to its correct description.



The image shows two diagrams of a cell in different stages of mitosis. The top diagram is an oval cell in metaphase, with four X-shaped chromosomes aligned vertically at the center. The bottom diagram is a circular cell in anaphase, with four V-shaped chromatids being pulled towards the top and bottom poles. Dashed lines in both diagrams represent the spindle fibers.

chromosomes shorten and thicken

chromosomes line up at the centre of the cell

chromatids are pulled to opposite ends of the cell

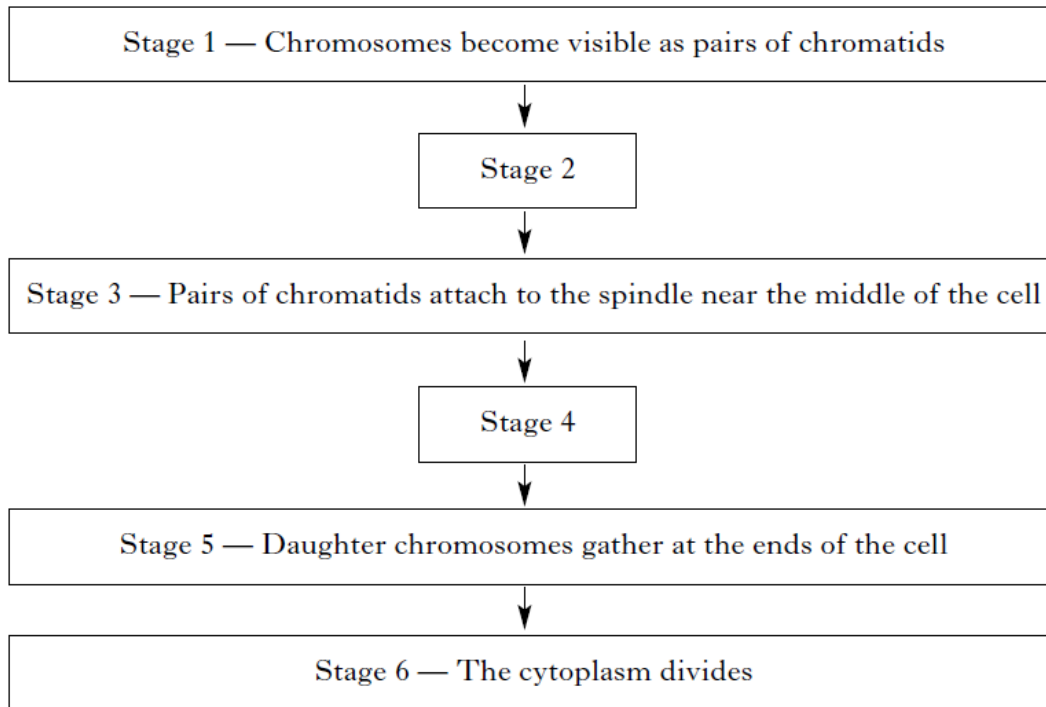
nuclear membrane reforms

2

(b) How does mitosis ensure that the daughter cells will be able to function properly?

1

(c) The following is a description of the stages of mitosis.



Describe stages 2 and 4 in the spaces below.

Stage 2 _____

Stage 4 _____

2

(d) Daughter cells produced by mitosis each have the same chromosome complement as the original cell. Why is this important?

1