B1 L6 Mandatory worksheet: Cell division: mitosis

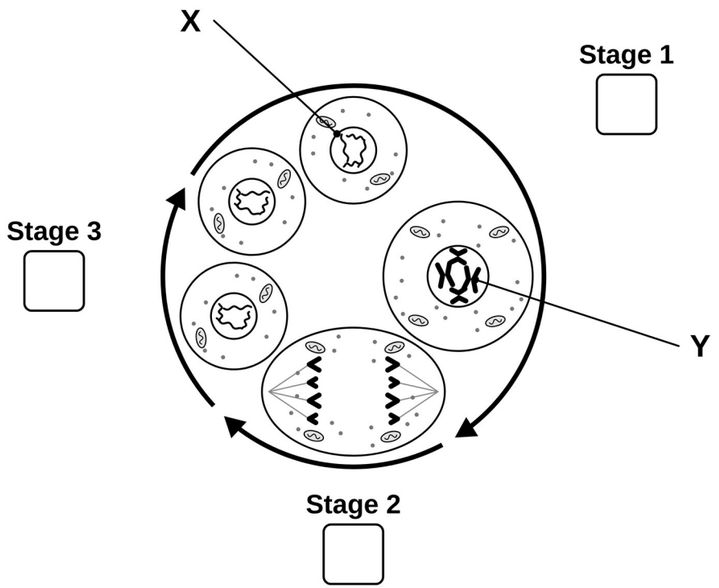
Name: _____ Class: _____

A. The cell cycle

Help: online screens 2 and 4 [7]

The diagram shows one cell going round the cell cycle.

(a) Write the letter P, Q or R in each stage box on the diagram. [3]



P The cytoplasm and cell membrane divide.

Q The cell grows and copies its DNA.

R One set of chromosomes is pulled to each end, and the nucleus divides.

(b) Name the parts labelled X and Y. [2]

X _____ Y _____

(c) The cell at the top of the diagram has 4 chromosomes. How many chromosomes are in each new cell at the end of the cycle? [1]

_____ chromosomes

(d) How many new cells are made from one cell in one cell cycle? [1]

_____ cells

B. Fill in the gaps

Help: online screen 3 [5]

Use words from the box. Use each word once. Two words are not needed.

23	46	DNA	genes	nucleus	pairs	ribosomes

1. Chromosomes are found in the _____ of a cell.
2. Chromosomes are made of a chemical called _____.
3. Each chromosome carries a large number of _____.
4. In body cells, chromosomes are normally found in _____.
5. A human body cell has _____ chromosomes.

C. Which stage?

Help: online screen 4 [6]

Tick (✓) one box in each row.

What happens	Stage 1	Stage 2 (mitosis)	Stage 3
1. The cell copies its DNA.			
2. One set of chromosomes is pulled to each end of the cell.			
3. The cytoplasm and cell membrane divide.			
4. The cell makes more ribosomes and mitochondria.			
5. The nucleus divides.			
6. Two separate daughter cells are formed.			

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D. Short answers

Help: online screens 1, 4, 6, 9, 10 and 11 [8]

1. What does “genetically identical” mean? [1]

_____

2. Give one way a dividing cell looks different from a cell that is not dividing, in a stained root tip. [1]

_____

_____

3. Give two reasons why a multicellular organism needs mitosis. [2]

_____

_____

4. An onion cell has 16 chromosomes. It divides by mitosis. How many chromosomes are in each new cell? [1]

_____ chromosomes

5. Mitosis is one stage of the cell cycle. What divides during mitosis? [1]

_____

6. A bacterium has no nucleus. Explain why it cannot divide by mitosis. [2]

_____

_____

_____

E. Calculate

Help: online screens 7 and 9 [4]

(a) Every cell divides once in each round. Complete the table. [2]

Rounds of division	0	1	2	3	4
Number of cells	1	2			

Use: **percentage of cells dividing = cells dividing ÷ total cells × 100**

(b) In a root tip, 16 of 200 cells are dividing. Calculate the percentage of cells that are dividing. Show your working. [2]

_____ %

F. Explain

Help: online screen 6 [3]

A cell divides by mitosis to make two daughter cells. Explain why the two daughter cells are genetically identical to the parent cell. [3]

_____

_____

_____

_____

_____