

Q1.

In which of the following situations is a non-zero resultant force acting?

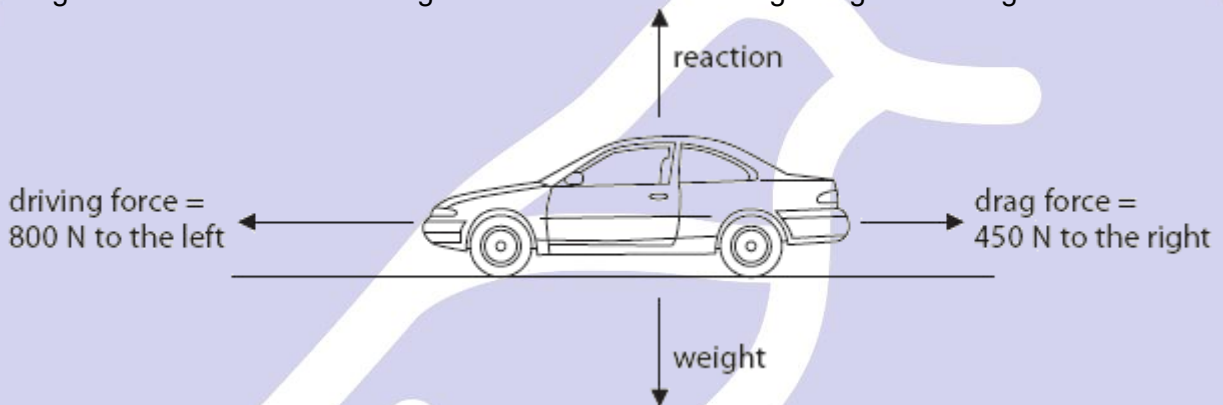
(1)

- A** a book rests on a table
- B** a car travels along a road at a constant speed
- C** a javelin moves through the air after leaving an athlete's hand
- D** a steel ball bearing descends through some car oil at a constant velocity

(Total for question = 1 mark)

Q2.

The diagram shows the forces acting on a car which is travelling along a flat straight road.



- (i) The size of the resultant force on the car is 350 N.
In which direction is the resultant force acting?

Put a cross () in the box next to your answer.

(1)

- A** down ↓
- B** to the left ←
- C** to the right →
- D** up ↑

- (ii) Complete the sentence by putting a cross () in the box next to your answer.

The car is

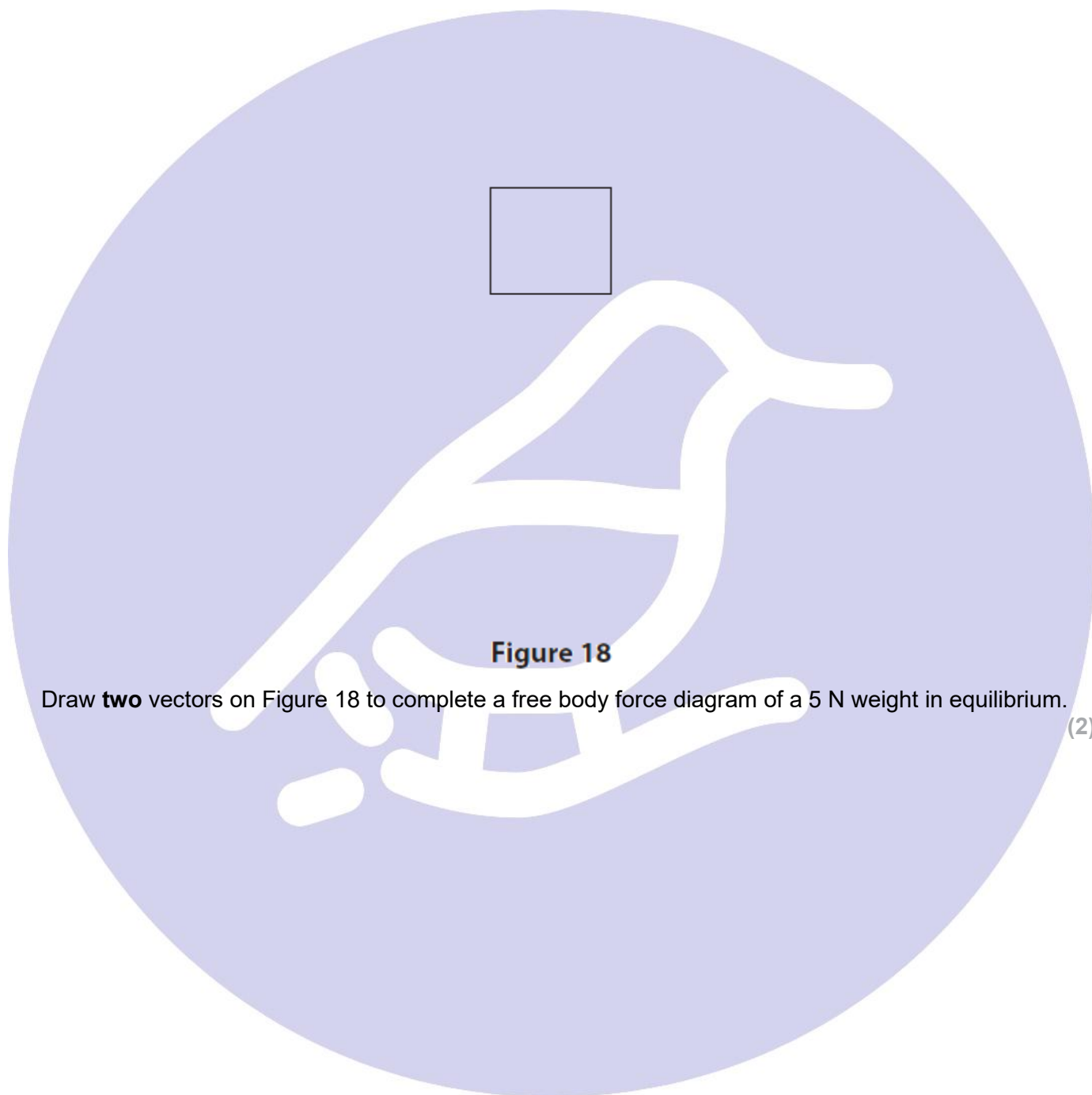
(1)

- A** accelerating
- B** decelerating
- C** moving at a constant speed
- D** not moving

(2)

Q3.

The box in Figure 18 represents a weight added to the end of a spring.



Draw **two** vectors on Figure 18 to complete a free body force diagram of a 5 N weight in equilibrium. (2)

(Total for question = 7 marks)

Q4.

Figure 8 shows a box sliding down a slope in the direction shown.

(3)

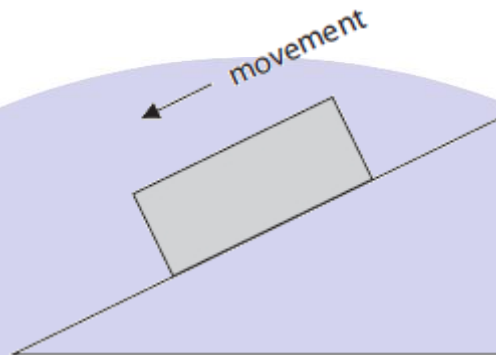


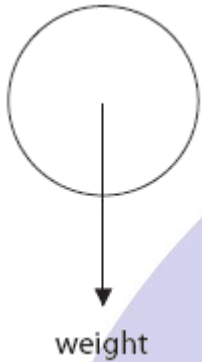
Figure 8

Draw two vector arrows on this diagram showing the 'normal contact force' and 'friction' acting on the box. Label these two forces.

(Total for question = 3 marks)

Q5.

Forces act on objects when they fall through the air.
There are two forces acting on this ball as it falls through the air.
The weight is shown on the diagram.



(i) Draw and label an arrow on the diagram to show the other force acting on the ball.

(2)

(ii) Use words from the box to complete the sentences.

(2)

| | | | | |
|----------|----------|---------|---------|------|
| balanced | changing | greater | smaller | zero |
|----------|----------|---------|---------|------|

After a short time the ball falls at a steady speed.

The forces acting on the ball are now

The acceleration of the ball is now

(Total for Question is 8 marks)