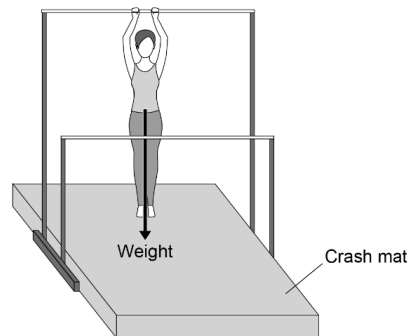


## Q1. (2019)

0 2

**Figure 3** shows a gymnast on a piece of gymnastic equipment.

The equipment consists of two bars at different heights.

**Figure 3**

0 2 . 1

The gymnast exerts a downward force on the bar.

What is the size of the upward force acting on the gymnast from the bar?

**[1 mark]**Tick (✓) **one** box.

It is greater than the downward force.

☐

It is less than the downward force.

☐

It is the same size as the downward force.

☐

## Q2. (2019)

0 3

**Figure 4** shows two children playing table tennis.

The boy hits the ball from one end of the table.

**Figure 4**

0 3 . 1

Why does the velocity of the ball change when the boy hits it?

**[1 mark]**Tick (✓) **one** box.

The direction of the ball does not change.

☐

There is a resultant force on the ball.

☐

The mass of the ball increases.

☐

The speed of the ball is constant.

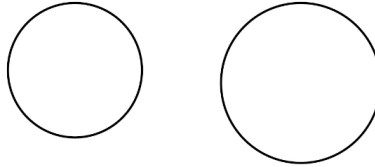
☐

## Q3. (2019)

0 3 . 4 Figure 5 shows two table tennis balls.

The balls are different sizes but have the same mass.

Figure 5



Both balls were dropped onto the table from the same height.

After they were dropped, the resultant force on the smaller ball was greater than the resultant force on the larger ball.

Explain why.

[2 marks]

## Q4. (2020)

0 1 Figure 1 shows a girl bowling a ball along a ten-pin bowling lane.

Figure 1



The girl is trying to knock down the ten pins at the end of the bowling lane.

As the ball travels along the lane the velocity of the ball decreases.

0 1 . 2 Why does the velocity of the ball decrease as the ball travels along the lane?

[1 mark]

Tick (✓) **one** box.

The force of gravity slows the ball down.

☐

There are no forces acting on the ball.

☐

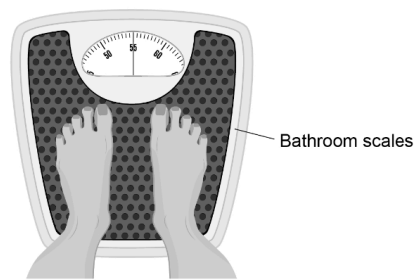
There is a resultant force acting on the ball.

☐

## Q5. (2021)

Figure 1 shows a person standing on some bathroom scales.

Figure 1



The person exerts a downward force on the scales and the scales exert an upward force on the person.

0 1 . 2 Which sentence about the forces is true?

[1 mark]

Tick (✓) **one** box.

The downward force is less than the upward force.

☐

The downward force is the same size as the upward force.

☐

The downward force is greater than the upward force.

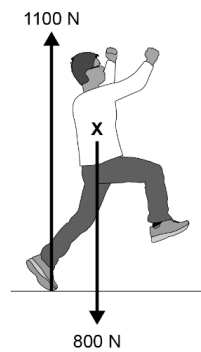
☐

Q6. (2021)

Figure 2 shows the forces acting on a person.

The person is about to jump.

Figure 2



0 1 . 7 Determine the size of the resultant force on the person in Figure 2.

[1 mark]

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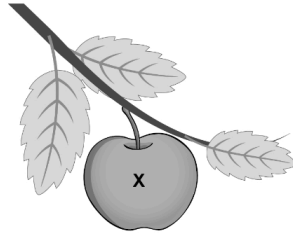


---

Resultant force = \_\_\_\_\_ N

Q7. (2022)

0 3

**Figure 4** shows an apple hanging from a tree.The **X** marks the centre of mass of the apple.**Figure 4**

a)

0 3 . 3

The apple in **Figure 4** is stationary.

Why is the apple stationary?

[1 mark]

Tick (✓) **one** box.

The resultant force on the apple is downwards.

☐

The resultant force on the apple is upwards.

☐

The resultant force on the apple is zero.

☐

b)

When the apple is ripe it falls from the tree and accelerates towards the ground.

0 3 . 4

Why does the apple accelerate?

[1 mark]

Tick (✓) **one** box.

The resultant force on the apple is downwards.

☐

The resultant force on the apple is upwards.

☐

The resultant force on the apple is zero.

☐

Q8. (2024)

0 1

**Figure 1** shows a skydiver jumping from an aeroplane.

The skydiver is accelerating downwards.

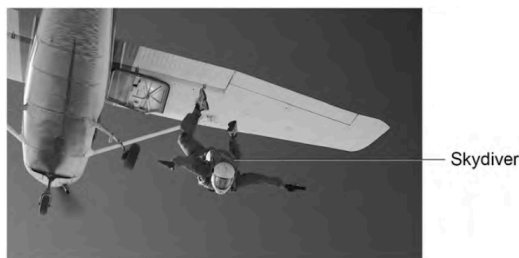
**Figure 1**

**Figure 2** shows the two forces acting on the skydiver a few seconds after jumping from the aeroplane.



**0 1 . 3** Calculate the resultant force acting on the skydiver in **Figure 2**.

**[1 mark]**

---

Resultant force = \_\_\_\_\_ N