P3.1 Pre-Unit Quiz

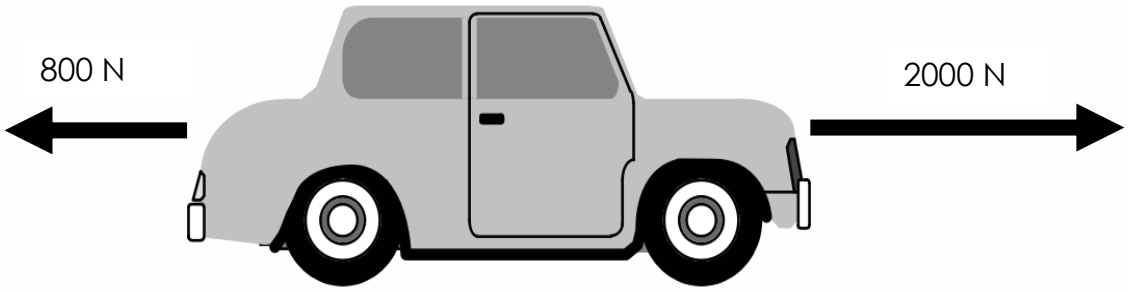
1. Which is the best definition for resultant force? [1]
   Tick (✓) **one** box.

   (a) Equal forces acting in opposite directions ☐

   (b) The overall effect of all the forces acting on an object ☐

   (c) The biggest force acting on an object ☐

The diagram below shows some of the forces acting on a car. Use this diagram to answer Questions 2 to 4.



2. What is the size of the resultant force on this car? [1]
   Tick (✓) **one** box.

   (a) 1200 N left ☐

   (b) 1200 N right ☐

   (c) 2800 N ☐

3. Which option **best** describes the motion of the car? [1]
   Tick (✓) **one** box.

   (a) The car would be stationary ☐

   (b) The car would be moving at a constant speed towards the right ☐

   (c) The car would be accelerating towards the right ☐

4. The backward force increases until it is also 2000 N. Which option **best** describes the new motion of the car? [1]

   Tick (✓) **one** box.

   (a) The car would be moving at a constant speed towards the right ☐

   (b) The car would slow down ☐

   (c) The car would have stopped ☐

5. Which option correctly shows how you would calculate the speed of a car that travelled 1 km in 1 minute? [1]

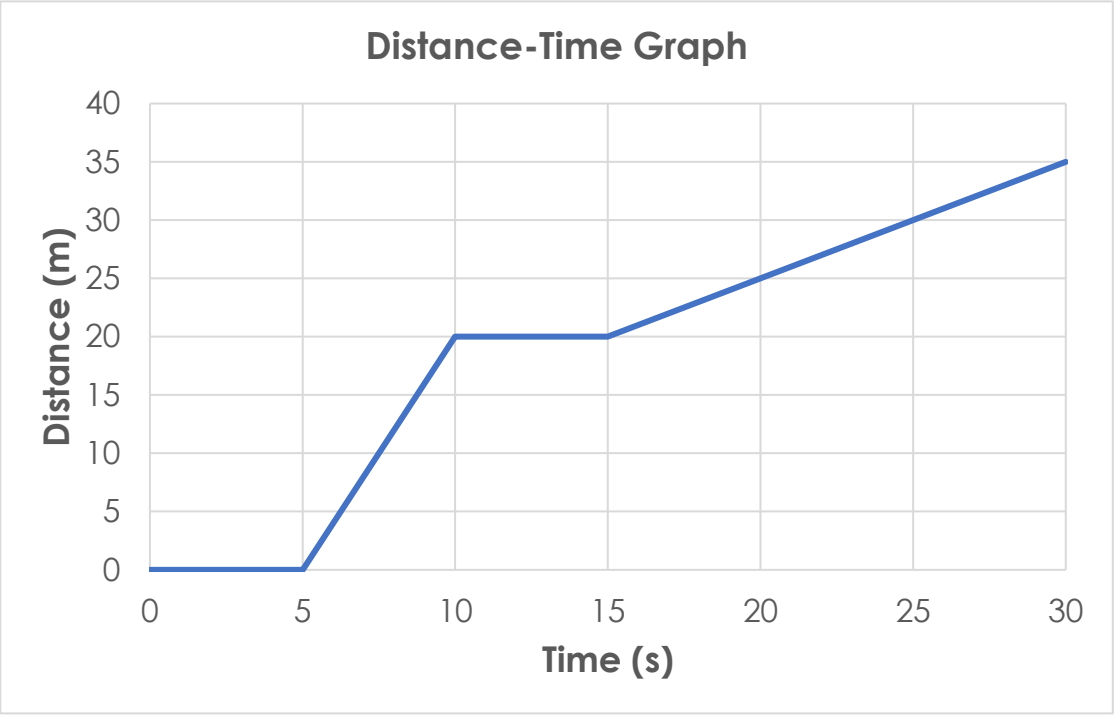
   Tick (✓) **one** box.

   (a) Speed = $\frac{1\text{ km}}{1\text{ minute}}$ ☐

   (b) Speed = $\frac{1000\text{ m}}{60\text{ seconds}}$ ☐

   (c) Speed = 1000 m x 60 seconds ☐

Use the following distance-time graph to answer Questions 6 to 9.



6. When is the object not moving? [1]
   Tick (✓) **one** box.
   (a) Between 0 and 5 seconds ☐
   (b) Between 5 and 10 seconds ☐
   (c) Between 15 and 30 seconds ☐

7. When is the object moving fastest? [1]
   Tick (✓) **one** box.
   (a) Between 5 and 10 seconds ☐
   (b) Between 10 and 15 seconds ☐
   (c) Between 15 and 30 seconds ☐

8. What is the total distance travelled by this object? [1]
   Tick (✓) **one** box.
   (a) 40 m ☐
   (b) 35 m ☐
   (c) 130 m ☐

9. Which is the correct SI unit for speed? [1]
   Tick (✓) **one** box.
   (a) m/s ☐
   (b) mph ☐
   (c) km/h ☐

10. A runner runs 1500 m in 500 seconds before resting for 50 seconds. Then she runs another 500 m in 250 seconds. What is her average speed for the whole run? [1]
    Tick (✓) **one** box.
    (a) 3 m/s ☐
    (b) 2.5 m/s ☐
    (c) 2.67 m/s ☐

Total = ___ /10