**11 Physics Learning task 1 Motion**

Time Allocation: 30 minutes Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1** | **2** | **3** |
| **Designs velocity time graph** | uses appropriate scale | assigns axes labels with units | inputs velocity data into graph |
| **Determines distance** | divides area under velocity time graph into sections | calculates the area of sections | calculates correct distance |
| **SUVAT**  **Focus on problem** | visualises problem by sketching image | identifies physics concepts | describes problem in own words |
| **SUVAT**  **Describes physics** | draws diagrams with coordinates | assign symbols to quantities and identifies unknown | lists quantities in correct units |
| **SUVAT**  **Uses required equations** | identifies required equation | inserts quantities into equation | evaluates answer with correct value and units |
| **SUVAT**  **Applies skills** | applies some prior skills to new problems | applies prior skills to new problems | solves problem with novel strategies |

### Question 1

A student goes for a run. She begins with a warm-up pace of 1.4 m s-1 for 10 seconds, then accelerates to 2.3 m s-1 over 5 seconds and continues at that speed for 5 more seconds. She then slows down over 3 seconds to a constant pace of 1.1 m s-1 to recover.

1. Draw the velocity-time graph for the students run.
2. What is the distance that she ran for this whole trip?

m

1. Another runner slows down by sliding across the ground to the finish line. There is considerable friction so they slow down quickly. They slide for 2 seconds and then stop. Before they started sliding, they were moving at 9 m s-1.
2. What was their average deceleration during the slide?

m s-2

1. How far did they slide?

m

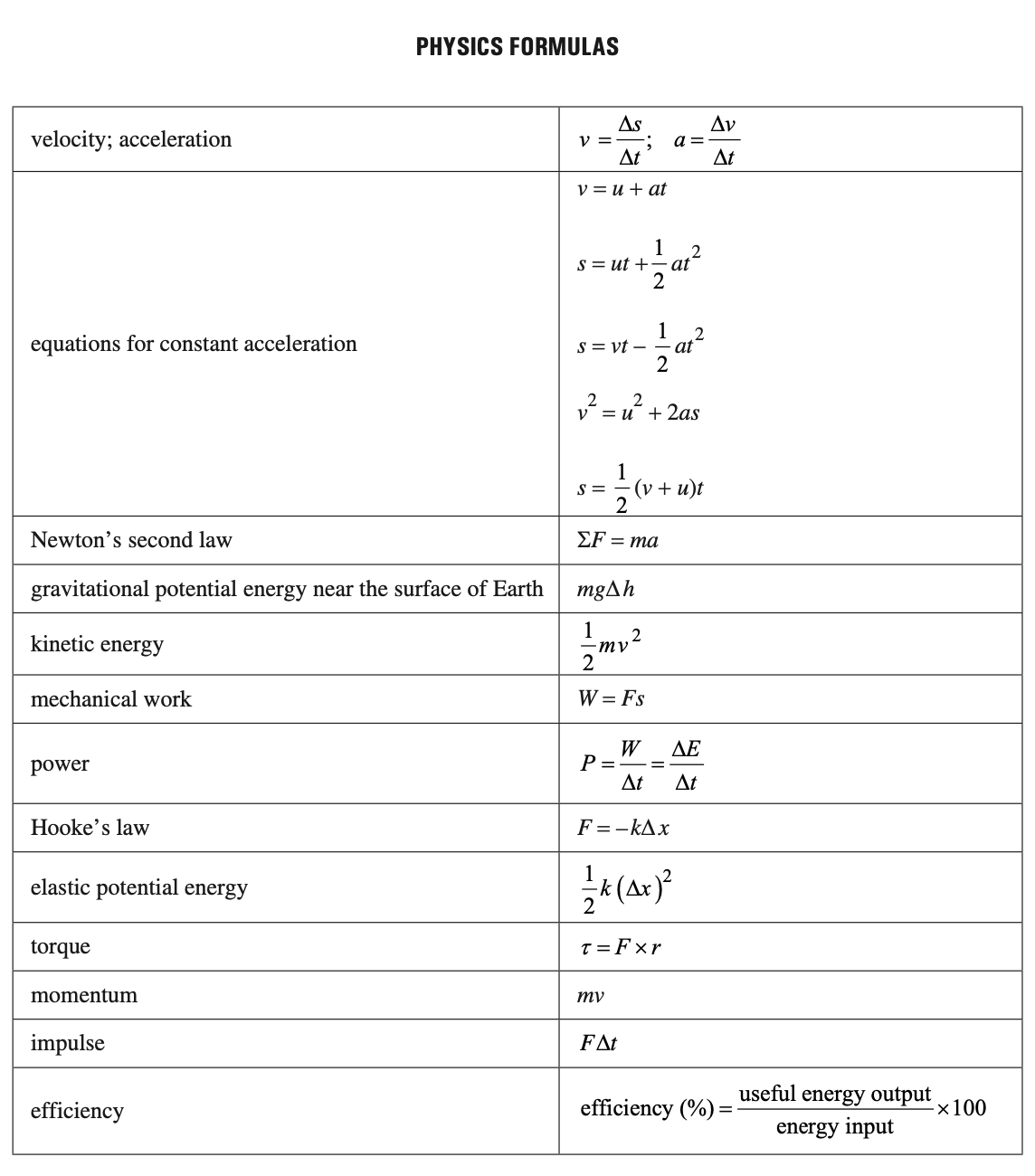
### Question 2

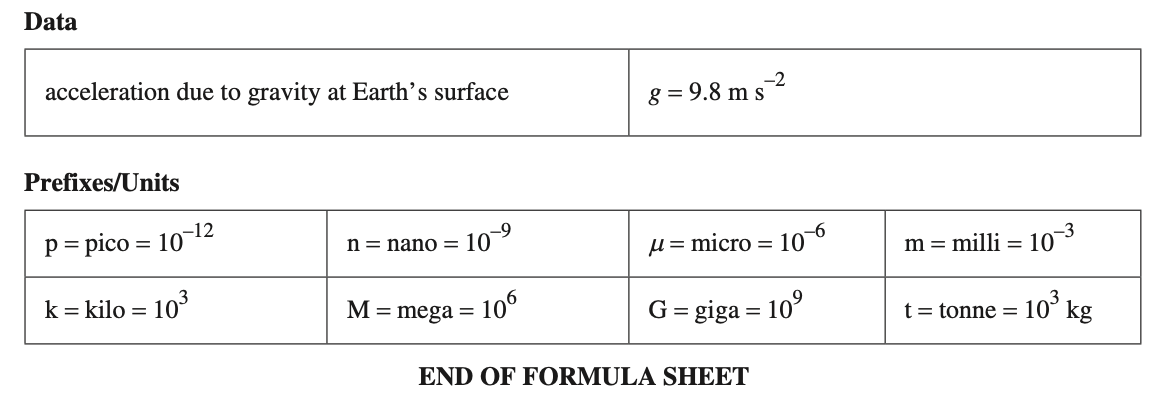
Some Gilson College students are doing the egg drop challenge, but they left their parachute for the egg at home on the test day. They decide to take a chance and drop their egg without the parachute. The egg is dropped from a height of 5m.

What is the velocity of the egg just before it hits the ground? Assume that acceleration due to gravity is 10 m.s-2.

m s-1

**End of SAC**

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