Distance-Time Graphs and Calculations Practice

The table below shows the odometer readings for Paul’s journey to visit his Great Aunt Mabel.

1. Plot a graph with time on the x-axis (along the bottom) and distance on the y-axis (up the side).
2. Label each section of the graph to describe how his speed changes over the course of his journey.
3. Calculate the average speed of the whole journey.

|  |  |
| --- | --- |
| Time (min) | Distance  (miles) |
| 0 | 0 |
| 10 | 0.7 |
| 20 | 7 |
| 30 | 17.1 |
| 40 | 27 |
| 50 | 27 |
| 60 | 37.3 |
| 70 | 42.1 |
| 80 | 42.1 |

1. Calculate the speed between: SHOW YOUR WORK

|  |  |
| --- | --- |
| * 1. 0 and 10 minutes |  |
| * 1. 10 and 20 minutes |  |
| * 1. 20 and 30 minutes |  |
| * 1. 30 and 40 minutes |  |
| * 1. 40 and 50 minutes |  |
| * 1. 50 and 60 minutes |  |
| * 1. 60 and 70 minutes |  |
| * 1. 70 and 80 minutes |  |

1. If you travel 7.5 km and walk for 1.5 hours, what is your average speed?
2. Goldie Goldfish, a speed swimmer, loves to race around the park’s pond, which is 0.5 miles around. If she can swim 20 laps around the track in 2 hours, what is her average speed?
3. It takes Stu, a slimy slug, 20 minutes to travel from his favorite bush to the local trash can (a trip of 30 meters), how far can he travel in 1 hour (60 minutes)?
4. At exactly 2:00 pm, Speedy the Snail crawls onto a meter stick at the 10 cm mark. If he reaches the 65 cm mark at exactly 2:10 pm, what is his speed?
5. If it takes Leaping Louie 5 minutes to jump 3 blocks, how long will it take for him to jump 15 blocks?
6. If Bert the Bat travels eastward at 40 mph with a tail wind of 6 mph, what is his actual speed?
7. An action hero is running on top of a train traveling at 55m/s. If our hero is moving toward the front of the train at a speed of 5 m/s, what is our hero’s resultant velocity?
8. You are on a bus traveling 47 m/s forward. You go to the back of the bus to visit your friend you are walking at a speed of 3 m/s. What is your resultant velocity?
9. A plane can travel with a speed of 80 mi/hr with respect to the air. Determine the resultant velocity of the plane (magnitude only) if it encounters a 10 mi/hr headwind (in the opposite direction).
10. A motorboat traveling 5 m/s, East encounters a current traveling 2.5 m/s, East.
    * 1. What is the resultant velocity of the motorboat?
      2. If the width of the river is 80 meters wide, then how much time does it take the boat to travel shore to shore?
11. In 1-2 complete sentences, describe the difference between speed and velocity.