

1(a)  $v = \frac{108 \text{ cm}}{89 \text{ s}} = 1.2 \text{ cm/s}$  (b)(i)  $v = \frac{90 \text{ cm} - 0}{34.5 \text{ s} - 5 \text{ s}} = 60 \text{ cm/s}$  (ii)  $v = 0 \text{ cm/s}$

Sally-The-Spider (ii)  $v = \frac{0 - 87 \text{ cm}}{48.5 \text{ s} - 0} = -1.8 \text{ cm/s}$

The position-time graph shows the motion of Sally-the-spider in her desperate climb for safety. Poor Sally frantically tried to climb to the top of her web, while Mean-Mark taunted her by knocking her down. Sally was finally saved when her sister Sue climbed into Marks shoe, thus diverting his attention and giving Sally time to escape.

Use the graph to answer the following questions. Show all work and calculations, including any lines you need to draw on the graph.

- What was Sally's average velocity over her whole climb?
  - What was her velocity at the following times: (instantaneous velocity)
    - 10.0 seconds
    - 19.5 seconds
    - 22.5 seconds
    - 45.0 seconds
    - 82.0 seconds

- Calculate Sally's average velocity in the following time intervals:
  - 10.0s - 55.0s
  - 50.0s - 75.0s

Sally The Spiders' Wild Climb to Safety

