

Physics 112/111  
ICA: Velocity vs. Time Graph #3

Name - Key

Date - \_\_\_\_\_

SHOW YOUR WORK ON YOUR OWN PAPER.  
Use east or west to indicate the directions of vector quantities.  
Report all answers to three significant digits.

1. What is the average acceleration for the object between 15 s and 125 s?  
0.127 m/s<sup>2</sup>, W (2)
2. How much time does the object spend traveling east? 105 s west? 45.0 s (2)
3. What is the velocity of the object at t = 150 s? 18.0 m/s, W (1)
4. The maximum velocity of the object is 18.0 m/s, W. (1)
5. What is the total distance travelled by object? 1.22 x 10<sup>3</sup> m (3)
6. The maximum speed of the object is 18.0 m/s (1)
7. At what time, if any, did the object reverse its direction? 105 s (1)
8. What is the average speed of the object for the <sup>150 s</sup> 160-s trip? 8.13 m/s (2)
9. What is the average velocity of the object for the <sup>150 s</sup> 160-s trip? 2.70 m/s, E (2)
10. What is the acceleration of the object at t = 50 s? 0 m/s (2)
11. The total time that the object is stopped is 0 s. (1)

1. (15, 6), (125, -8)

$$\vec{a} = \frac{-8 - 6}{125 - 15}$$

$$\vec{a} = -0.127 \text{ m/s}^2$$

$$8. \text{ ave. speed} = \frac{d}{t} = \frac{1.22 \times 10^3 \text{ m}}{150 \text{ s}} = 8.13 \text{ m/s}$$

$$9. \text{ ave. vel} = \frac{\vec{d}}{t} = \frac{+A_1 - A_2}{t} = \frac{405}{150 \text{ s}} = 2.70 \text{ m/s}$$

$$5. d = 810 \text{ m} + 405 \text{ m} = 1.22 \times 10^3 \text{ m}$$

10.  $\vec{a} = 0$  (horizontal line)