Name: Date: Period:

Unit 01 Review

$$v = \frac{d}{t} \qquad a = \frac{\Delta v}{t} \qquad \Delta v = v_f - v_i$$

1. Define the following terms
   (a) distance

   (b) displacement

   (c) speed

   (d) velocity

   (e) acceleration

2. What is the acceleration of a ping-pong ball that is initially traveling at 15 m/s, and then is returned to the other player with a velocity of -15 m/s in 0.2 s?

3. What is the final velocity of an ice cream truck that has an initial velocity of 5 m/s, and accelerates at 2.1 m/s^2 for 7.3 s?

4. How much time will it take an octopus that swims at 23 m/s to travel 82 m?

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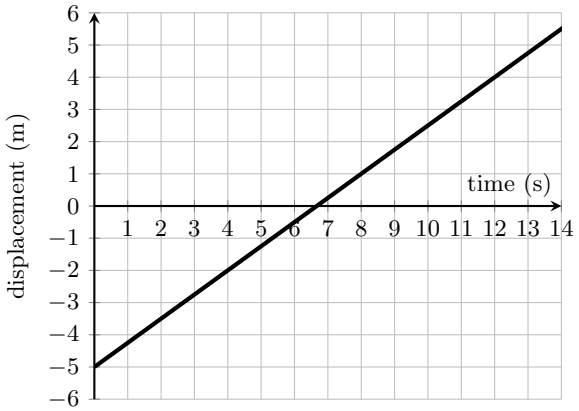
5. What does it mean to say that an object is accelerating at $10\,\mathrm{m/s^2}$?

6. Consider this graph of a motor boat's displacement over time.



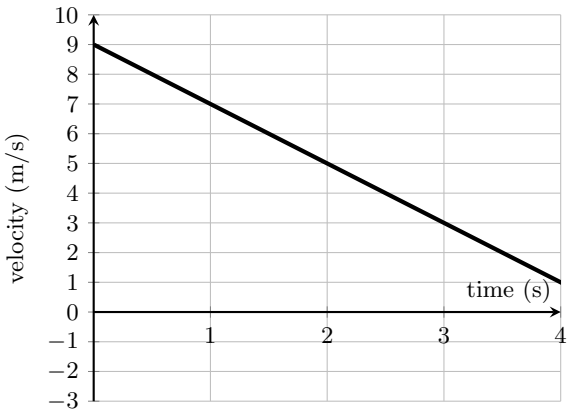
(a) The object is moving
◯ forward ◯ backward

(b) The object is
◯ speeding up
◯ slowing down
◯ moving at a constant speed

(c) Calculate the velocity.

(d) Calculate the acceleration.

7. Consider this graph of this train's velocity over time.



(a) The object is moving
◯ forward ◯ backward

(b) The object is
◯ speeding up
◯ slowing down
◯ moving at a constant speed

(c) Calculate the acceleration.

8. A bear walks 50 m east in 60 s. Then, he turns around and walks 50 m west back to his starting point in 120 s. What is his (a) average speed and (b) average velocity for the entire trip?