## Motion Self-Assessment

1. Which of the following position time graphs would represent an object that is moving along at a constant speed and then suddenly stops.
a)

b)

c)

d)

2. Which of the following velocity time graphs represents an object that is moving along at a constant speed and then suddenly stops.
a)

b)

c)
d)


3. Which of the following is a unit of velocity?
a) m
b) $\mathrm{m} / \mathrm{s}^{2}$
c) $\mathrm{km} / \mathrm{hr}$
d) seconds
e) b and c
$\qquad$ 4. Which of the following position time graphs would represent an object that is increasing in speed at a constant rate?
a)

b)

c)

d)

___ 5. Which of the following velocity time graphs would represent an object that is increasing in speed at a constant rate?
a)

b)

c)

d)


Questions 6-7 refer to the figure below.

Figure 1 depicts a trail of bean bags that was left by a student who was riding on a radio flyer wagon pulled in the direction shown by the arrow. The student dropped a bean bag each second that the wagon was moving.

fig. 1
$\qquad$ 6. Which of the following statements best describes the student's ride?
a) The wagon is moving at a constant velocity.
b) The wagon is moving at a constant nonzero acceleration.
c) The velocity is increasing.
d) The velocity is decreasing.
7. Which of the graphs depicted below best illustrates the position of the wagon in fig. 1over the time of its motion?

a)

b)

c)

d)

8. Figure 2 depicts a trail of bean bags that was left by the student in the previous question in a different trial. Which of the statements below best describe this ride?
$\square$
$\begin{array}{lllll}\square & \square & \square & \square & \square\end{array}$
fig. 2
Which of the following regarding the motion of the wagon depicted in figure 2 is correct?
a) The wagon is accelerating.
b) The wagon did not accelerate.
c) The wagon is moving at a constant velocity.
d) Cannot make a determination from the data.
9. Which of the graphs depicted below best illustrates the position of the wagon from figure 2 over the time of its motion?

a)

b)

c)

d)

e)
10. Figure 3 depicts a multi-flash photograph of a puck moving along a horizontal surface. The positions of the puck indicated in the diagram are separated by equal time intervals. Which of the graphs best represents the velocity of the puck as a function of time?

fig. 3

a)

b)

c)

d)

e)
11. The graph below is a velocity time graph for a car. How far is the car from where it started?

a) 0 m
b) 30 m
c) 40 m
d) 60 m
e) Not enough information to determine answer

12. The velocity-time graph shown above illustrates the motion of a vehicle over a time of 20 seconds. Determine the acceleration of the vehicle over the time interval $a \rightarrow b$.
a) $15 \mathrm{~m} / \mathrm{s}^{2}$
b) $6 \mathrm{~m} / \mathrm{s}^{2}$
c) $0 \mathrm{~m} / \mathrm{s}^{2}$
d) $30 \mathrm{~m} / \mathrm{s}^{2}$
13. At which points is the velocity of the vehicle zero?
a) a, d, g
b) b, c, e, f
c) b, e
d) The velocity is never zero.
14. Identify any intervals where the average acceleration of the vehicle was zero.
a) A-b, f-g
b) a-d
c) c-d, d-e
d) $b-c$, e-f
e) the acceleration is never zero.
15. Which of the following position vs. time graphs reflects the motion of the vehicle from points $\mathbf{a}$ to $\mathbf{b}$ on the velocity vs. time graph above.

a.

b.

c.

d.

e.
16. Two cars drive at constant speeds down a deserted road. Car A drives at 50 miles/hour, Car B drives at 75 miles/hour. Car B starts driving 100 km from where Car A starts driving and eventually passes Car A. Which of the following position-time graphs reflects this scenario?

a.

b.

c.

