

# Practice Problems: Acceleration

Directions: Complete the table below.

	Final velocity $v_f$	Initial velocity $v$	$v_f - v$ $\Delta v$	Time (t)	$a = \frac{\Delta v}{t}$
1	26 m/s	20 m/s	6 m/s	6 s	1
2	0 km/s	12 km/s	-12	4 s	-3
3	8 m/s	3 m/s	5	2 s	2.5
4	464 m/s	273 m/s	191	11 s	17
5	5 m/s	15 m/s	-10	5 s	-2

Complete the following word problems. Show your work.

6. A paperboy rode his bike at 3 m/s. After being chased by a dog for 8 seconds, he was traveling 6 m/s. What is his acceleration?  $2.666666666666667$
7. A pumpkin is dropped, and after 5 seconds its velocity is 47 m/s. What is its acceleration?  $9.6$
6. A soccer player is running at 6 m/s. He then stumbles over an opponent's foot, falls and rolls to a stop. This took 4 seconds. What was his acceleration?  $-0.67$
7. A skateboarder fell doing a jump. She got up and after 5 seconds returned to a velocity of 5 m/s. What was her acceleration?  $1 \text{ m/s}^2$

Paste this page in your Science Interactive Notebook and use the Speed Formula Triangle to calculate the following:

1. Becky leaves home and rides a distance of 30 km. It took her 25 hours. What is her speed? 1 km every 90 minutes

2. A speed boat is traveling at 100 km/hr. How many hours will it take for the boat to cover a distance of 115 km? 1 1/4 or 1 hour 15 minutes or 1.25

3. What is the speed of a helicopter that traveled 1200 miles in 7 hours? 171.4

4. A hot air balloon traveled 25 hours at a speed of 450 km/hr. What distance did it travel? 1125

5. An airplane leaves Orlando FL and travels 540 miles to Washington D.C. The flight takes 90 minutes. What is the speed of the plane? 360 mph

$$\begin{array}{r} 171.4 \\ \hline 7 \overline{) 1200} \\ \underline{7} \phantom{00} \\ 50 \\ \underline{49} \phantom{0} \\ 10 \\ \underline{7} \phantom{0} \\ 30 \\ \underline{28} \phantom{0} \\ 20 \end{array}$$

$$\begin{array}{r} 4 \\ 990 \\ \times 25 \\ \hline 2250 \\ 9900 \\ \hline 11250 \end{array}$$

$$\begin{array}{r} 50 \\ \hline 3 \overline{) 1500} \\ \underline{150} \phantom{0} \\ 00 \end{array}$$

$$\begin{array}{r} 60 \\ \times 25 \\ \hline 300 \\ 1200 \\ \hline 1500 \end{array}$$

$$\begin{array}{r} 60 \\ \times 6 \\ \hline 360 \end{array}$$

$$\begin{array}{r} 540 \\ \div 6 \\ \hline 90 \end{array}$$

Quiz Describing Motion  
Matching

- b 1 Motion
  - d 2 Distance
  - e 3 Displacement
  - c 4 Instantaneous speed
  - a 5 Constant speed
- speed that does not vary
  - when an object changes position
  - speed at any given point in time
  - how far an object has moved
  - distance and direction of an object's change in position

6 To skate 100 meters in 20 seconds, a skater must skate at a speed of 5 mps.

7 If a runner maintains a constant speed of 12 miles/hour, how long will it take to complete a half marathon race of 13.1 miles? 1.01

8 If Johnny won a 300 meter race in 40 seconds, his speed would be 7.5 mps.

Time

Distance

Speed

9.

$$\begin{array}{r} 547 \\ 45 \overline{) 2475} \\ \underline{225} \phantom{0} \\ 225 \phantom{0} \\ \underline{225} \phantom{0} \\ 0 \phantom{0} \end{array}$$

17.3

$$\begin{array}{r} 17.3 \\ 191 \overline{) 3284.3} \\ \underline{382} \phantom{0} \\ 464 \phantom{0} \\ \underline{382} \phantom{0} \\ 82 \phantom{0} \\ \underline{756} \phantom{0} \\ 68 \phantom{0} \\ \underline{673} \phantom{0} \\ 5 \phantom{0} \end{array}$$

2.6

$$\begin{array}{r} 2.6 \\ 3 \overline{) 7.8} \\ \underline{6} \phantom{0} \\ 18 \phantom{0} \\ \underline{18} \phantom{0} \\ 0 \phantom{0} \end{array}$$

10

$$\begin{array}{r} 10 \\ 131 \overline{) 1310} \\ \underline{131} \phantom{0} \\ 0 \phantom{0} \end{array}$$

7.5

$$\begin{array}{r} 7.5 \\ 4 \overline{) 300} \\ \underline{28} \phantom{0} \\ 20 \phantom{0} \\ \underline{20} \phantom{0} \\ 0 \phantom{0} \end{array}$$

11

$$\begin{array}{r} 11 \\ 131 \overline{) 1441} \\ \underline{144} \phantom{0} \\ 0 \phantom{0} \end{array}$$