

### Skill Sheet 4.3: Acceleration

1.  $-0.75 \text{ m/sec}^2$
2.  $-8.9 \text{ m/sec}^2$
3. Answers are:

Time (seconds)	Speed (km/h)
0 (start)	0 (start)
2	3
4	6
6	9
8	12
10	15
The acceleration of the ball is $1.5 \text{ km/hr/s}$ .	

4. 7.5 seconds
5. 88 mph
6. 22 m/s
7.  $7 \text{ m/s}^2$
8.  $-1.9 \text{ mph/s}$
9. 67 m/s
10. 32 m/s
11.  $1.7 \text{ m/s}^2$
12. 2.6 seconds
13.  $-2.3 \text{ m/s}^2$

### Skill Sheet 4.3: Acceleration and Speed-Time Graphs

1. Acceleration = 5 miles/hour/hour or  $5 \text{ miles/hour}^2$
2. Acceleration = -2 meters/minute/minute or  $-2 \text{ meters/minute}^2$
3. Acceleration = 0 feet/minute/minute or  $0 \text{ feet/minute}^2$  or no acceleration
4. Answers are:
5. Segment 1: Acceleration = 2 feet/second/second, or  $2 \text{ feet/second}^2$
6. Segment 2: Acceleration = 0.67 feet/second/second, or  $0.67 \text{ feet/second}^2$
7. Distance = 1,400 meters
8. Distance = 700 meters
9. Distance = 75 kilometers

### Skill Sheet 4.3: Acceleration due to Gravity

1. velocity =  $-14.7 \text{ m/sec}$
2. velocity =  $11.3 \text{ m/sec}$
3. velocity =  $-76.4 \text{ m/sec}$
4. velocity =  $-16 \text{ m/sec}$
5. depth = 86 meters
6. height = 11 meters; yes
7. time = 5.6 seconds
8. time = 7.0 seconds

### Skill Sheet 5.1: Ratios and Proportions

1. 6 tablespoons; 2 eggs
2.  $\frac{3}{4}$  cup;  $\frac{1}{3}$  teaspoon
3.  $\frac{1}{4}$  teaspoon;  $\frac{3}{4}$  cup
4. Table answers:

Sugar	$\frac{3}{8}$ cup
Butter	3 tablespoons
Milk	1 tablespoon
Chocolate chips	1 cup
Eggs	1 egg
Vanilla extract	$\frac{1}{2}$ teaspoon

Baking soda	$\frac{1}{6}$ teaspoon
Salt	$\frac{1}{8}$ teaspoon
Confectioner's sugar	1 tablespoon

5. To make 16 brownies, you need two eggs and 2 tablespoons of sugar. Therefore, to make 8 brownies, you only need 1 of each unit for each ingredient: 1 egg and 1 tablespoon of sugar.
6. Since 8 brownies requires 1 cup of chocolate chips, 3 cups of chocolate chips will make 24 brownies.
7. 1.5 teaspoons vanilla are needed to make 24 brownies.

### Skill Sheet 5.1: Internet Research Skills

#### Part 1 answers:

1. Example answer: "science museums" + "South Carolina" not "Columbia"
2. "dog breeds" + "inexpensive"
3. "producing electricity" not "coal" not "natural gas"

#### Part 2 answers:

1. Answers will vary. Sites that may be authoritative include non-profit sites (recognizable by having "org" as the extension in the web address) or government sites such as [www.nasa.gov](http://www.nasa.gov) (recognizable by the "gov" extension address) or college/university websites (recognizable by the "edu" extension address).

These sites often provide information to large, diverse groups and are not typically supported by advertising. Sites that are supported by advertising can be authoritative, but may be biased in the information presented. Another characteristic of authoritative sites are that they are actively updated on a regular basis.

2. Answers will vary. Reasons for why a source may not seem to be authoritative include: the author of the site is not affiliated with an organization and does not have obvious credentials, and the information seems to be one-sided. Many science topic searches will lead to student papers published on the