

SECTION 1

Reinforcement

Motion

Chapter

6

Directions: Choose the term from Column II that best describes the examples in Column I. Some terms will not be used.

Column I

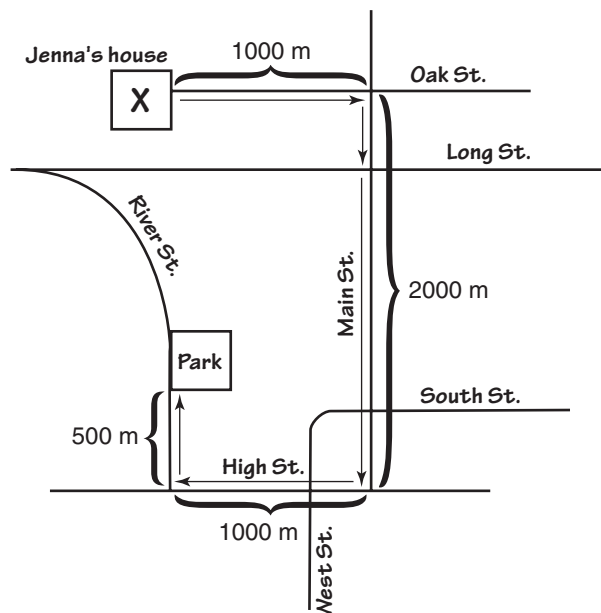
- _____ 1. A dog is sitting beside the door of a house; five minutes later the dog is 10 m away from the door.
- _____ 2. A car travels on the freeway for 1.75 h with its cruise control set at 80 km/h.
- _____ 3. A wagon travels 4.6 km.
- _____ 4. A hiker walks north at 5 km/h.
- _____ 5. The speedometer of a car reads 55 km/h.
- _____ 6. A horse speeds up, runs around a track, then slows and comes to a stop.
- _____ 7. change in position
- _____ 8. A school office worker leaves the office, delivers messages around the school, and ends up back where she started.

Column II

- a. motion
- b. relative motion
- c. distance
- d. displacement
- e. acceleration
- f. instantaneous speed
- g. speed
- h. constant speed
- i. average speed
- j. velocity

Directions: Use the map to answer questions 9 through 12.

Jenna left home, walked around town, and ended at a park. The figure below shows the route of her walk.



9. What distance did Jenna walk?

10. What was Jenna's displacement?

11. If Jenna covered the entire distance in 5 hours, what was her average speed?

12. If Jenna started from rest and reached the corner of Oak St. and Main St. in 1.5 h and was walking with a velocity of 90 m/h, what was her acceleration between the start and corner A?

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Reinforcement

Newton's First Law

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Directions: In question 1, below, a code letter has been substituted for each letter of the alphabet. To find what the sentence says, use the following key to decode it. In the key, the code letters are shown directly below the alphabet letter they stand for. Write the correct letter directly above each code letter, then read the sentence.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

X M J W T A O U R V G Q D Z B Y I E P N H C S L F K

1. _____
X M B W F E T D X R Z P X N J B Z P N X Z N

C T G B J R N F H Z G T P P X Z H Z M X G X Z J T W

A B E J T X J N P B Z R N

2. Which law of motion does the above sentence state?

Directions: Answer the following questions on the lines provided.

3. What is a force?

4. Is it possible for an object not to be in motion and still have forces acting on it? Explain.

5. What is inertia? How are mass and inertia related?

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Directions: Circle the term in parentheses that best completes the statement.

1. Gravity is a (force, mass, distance).
2. The friction involved in a wagon moving down a hill is (static, sliding, rolling) friction.
3. As the force acting on you increases, your acceleration (increases, decreases, remains the same).
4. The unit of force is the (meter, hertz, newton).
5. If you go to the moon, your mass (increases, decreases, remains the same).
6. As you glide across a frozen pond, (static, sliding, rolling) friction is acting on your skates.
7. If there is no change in force as you increase the mass a truck is carrying, its acceleration (increases, decreases, remains the same).
8. An ant falling from the roof of a house lands unharmed because of (gravity, static friction, air resistance).

Directions: If the following statements are true, write **true**. If the statements are false, replace the term or phrase in italics to make the statement true.

- _____ 9. If you go to the moon, your weight would *stay the same*.
- _____ 10. Given the same force, a baseball will accelerate *faster than* a tennis ball.
- _____ 11. The force always acting on everything on Earth is *gravity*.
- _____ 12. *Rolling friction* keeps a wagon from rolling until it is pushed.

Directions: Solve the following problems in the spaces provided.

13. A force of 40 N is exerted on a 10-kg box. What is the box's acceleration?

14. What unbalanced force is required to accelerate a 1,500 kg-race car at 3.0 m/s²?

15. If a student has a mass of 90 kg, what is the student's weight?

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Reinforcement

Newton's Third Law

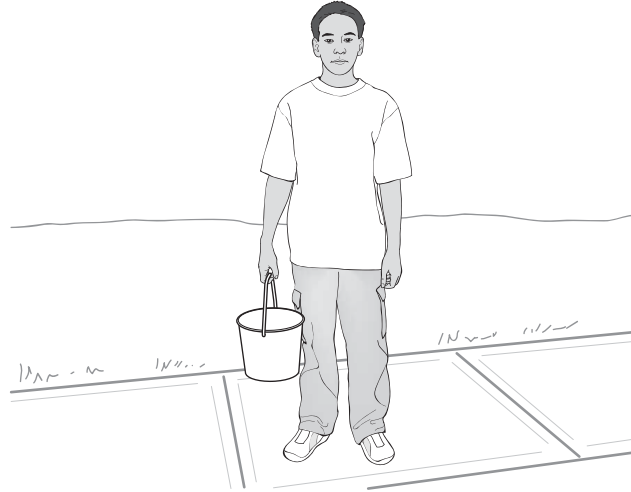
Chapter

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Directions: Study the drawing below of a boy holding a bucket and answer questions 1 through 4.

1. Identify two pairs of action-reaction forces involving the bucket.

2. What are the balanced forces acting on the bucket?



3. What happens if the hand-on-bucket force increases? Explain.

4. What could you do to increase the Earth-on-bucket force?

Directions: Find the mistakes in the statements below. Rewrite each statement correctly on the lines provided.

5. An action-reaction force pair acts on the same body.

6. When action-reaction force pairs come into being, the action force is created first.

7. Action-reaction forces always act in the same direction.

8. Forces act in unequal but opposite pairs.
