

Skill and Practice Sheet Answers

2A Reading Strategies (SQ3R)

This skill sheet teaches strategies that students can use throughout the course as they read the student text and study for exams.

2B Study Notes

This skill sheet provides a note-taking grid for students. It can be used with reading assignments throughout the school year.

2C Recording Observations in the Lab

Exercise 1:

1. c
2. a
3. c

Exercise 2:

- a. Disappearance of copper color on pennies
- b. Mass by year
- c. Data/observations
- d. answers vary.

2D Writing a Lab Report

This skill sheet can be used throughout the school year as a guide to writing a formal lab report.

2E Displacement

1. 55 cm
2. Answers are:
 - a. 0 cm
 - b. 180 cm

3. Answers are:
 - a. 15 cm
 - b. -15 cm
 - c. 65 cm
4. Answers are:
 - a. The play was bad for the team because they are 20 yards farther away from the end zone.
 - b. The wide receiver had to run back and forth to get open to catch the football, but his endpoint was only 10 yards from where he started.

2F Velocity

1. 420 km/h, north
2. 0.30 seconds
3. 224 minutes
4. Answers are:
 - a. 1.62 m/s, west
 - b. 1.62 m/s, east
5. 16.0 hours
6. 3.0 m/s, west
7. Answers are:
 - a. 4.5 m/s, south
 - b. 4.5 m/s, north
8. 22 seconds
9. Answers are:
 - a. 0.36 miles/minute, southwest or 22 mph, southwest
 - b. The average velocity does not tell how fast she was going at every point in her journey. Her instantaneous velocity may have been slower or even zero at times (if she stopped at a red light, for example). Her instantaneous velocity may have been faster at other times (she may have sped up to pass another car).
10. 116 kilometers
11. 3.9 km/hr, southeast
12. 9.39 kilometers

2G Acceleration

1. -0.75 m/s^2
2. -8.9 m/s^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 km/h/s. | |

4. 7.5 seconds
5. 88 mph
6. 22 m/s
7. 7 m/s^2
8. -1.9 mph/s
9. 67 m/s
10. 32 m/s
11. 1.7 m/s^2
12. 2.6 seconds
13. -2.3 m/s^2
14. Answers will vary.

2H Graphing Practice

1. Answers are:

| Data pair not necessarily in order | | Independent | Dependent |
|--|------------------|------------------|-------------------|
| Temperature | Hours of heating | Hours of heating | Temperature |
| Stopping distance | Speed of a car | Speed of a car | Stopping distance |

| Data pair not necessarily in order | | Independent | Dependent |
|--|-------------------------------------|----------------------------|-----------------------------|
| Number of people in family | Cost per week for groceries | Number of people in family | Cost per week for groceries |
| Stream flow | Rainfall | Amount of rainfall | Rate of stream flow |
| Tree age | Average tree height | Tree age | Average tree height |
| Test score | Number of hours studying for a test | Number of hours studying | Test score |
| Population of a city | Number of schools needed | Population of a city | Number of schools needed |

2. Answers are:

| Range | Number of lines | Range ÷ No. of lines | Calculated scale (per line) | Adj. scale (per line) |
|-------|-----------------|----------------------|-----------------------------|-----------------------|
| 13 | 24 | $13 \div 24$ | 0.54 | 1 |
| 83 | 43 | $83 \div 43$ | 1.9 | 2 |
| 31 | 35 | $31 \div 35$ | 0.88 | 1 |
| 100 | 33 | $100 \div 33$ | 3.03 | 5 |
| 300 | 20 | $300 \div 20$ | 15 | 15 |
| 900 | 15 | $900 \div 15$ | 60 | 60 |

3. Answers are:

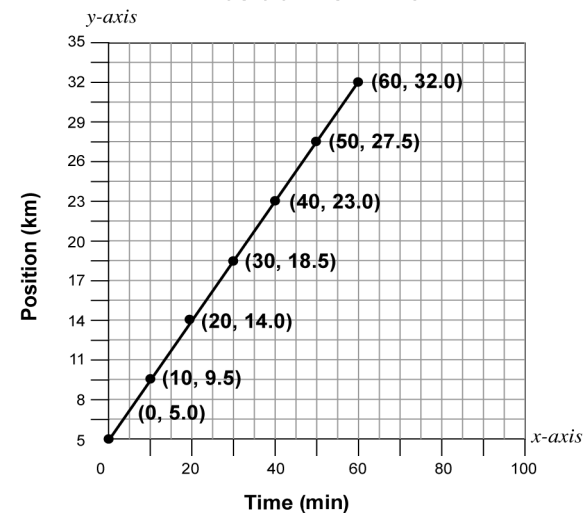
a. Table answers:

| Independent variable | Dependent variable |
|----------------------|--------------------|
| 0 | 5.0 |
| 10 | 9.5 |
| 20 | 14.0 |

| Independent variable | Dependent variable |
|----------------------|--------------------|
| 30 | 18.5 |
| 40 | 23.0 |
| 50 | 27.5 |
| 60 | 32.0 |

- b. 60 minutes
- c. 27.0 kilometers
- d. Adjusted scale for the x-axis: 3 per line or 5 per line; adjusted scale for the y-axis: 1.5 per line or 2 per line
- e. See graph below
- f. See graph below

Position vs. Time



g. After 45 minutes, the position would be about 25.25 kilometers.

2I What's the Scale?

1. Answers are:

| Range from 0 | Number of Lines | Range ÷ # of Lines | Calculated scale | Adj. scale (whole #) |
|--------------|-----------------|--------------------|------------------|----------------------|
| 14 | 10 | $14 \div 10 =$ | 1.4 | 2 |
| 8 | 5 | $8 \div 5 =$ | 1.6 | 2 |
| 1000 | 20 | $1000 \div 20 =$ | 50 | 50 |
| 547 | 15 | $547 \div 15 =$ | 36.5 | 37 |
| 99 | 30 | $99 \div 30 =$ | 3.3 | 4 |
| 35 | 12 | $35 \div 12 =$ | 2.9 | 3 |

2. The range is 30 and the scale is 1 per line.

3. The range is 25 and the scale is 3 per line.

4. Answers are:

- a. Independent variable: Days
Dependent variable: Average Temperature (°F)
- b. Range for x-axis = 11
Range for y-axis = 73
- c. Scale for x-axis = 1 day/box
Scale for y-axis = 4 °F/box

2J Slope and Motion Graphs

1. b

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{15 - 0 \text{ km}}{3 - 0 \text{ h}} = \frac{15 \text{ km}}{3 \text{ h}} = 5 \text{ km/h}$$

3. The object has zero acceleration because the velocity is not changing (the position is changing, but not the velocity).

4. c

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{0 - 60 \text{ m}}{30 - 0 \text{ s}} = \frac{-60 \text{ m}}{30 \text{ s}} = -2 \text{ m/s}$$

6. b

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{15 - 0 \text{ m/s}}{3 - 0 \text{ s}} = \frac{15 \text{ m/s}}{3 \text{ s}} = 5 \text{ m/s/s}$$

8. c

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{0 - 60 \text{ m/s}}{30 - 0 \text{ s}} = \frac{-60 \text{ m/s}}{30 \text{ s}} = -2 \text{ m/s/s}$$

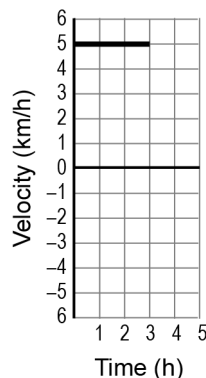
10. The line slopes up to the right. It goes through the points (0,-80) and (20, -40).

11. The line is horizontal. It goes through the points (0, -60) and (20, -60).

12. The object is moving toward the origin because it has a negative velocity.

13.

Velocity vs. Time



14.

Position vs. Time

