Chapter 6 Review

Key Words

For #1 to #5, unscramble the letters for each term. Use the clues to help you.

1. R A N E I L   R A I N E T L O
a pattern made by a set of points that lie in a straight line when graphed

2. P L E X A T R O T E A
estimate values beyond known data

3. T S T O N C A N
in $y = 4x + 3$, the number 3 is an example

4. E L I N A R   Q U E I O N A T
an equation that relates two variables in such a way that the pattern forms a straight line when graphed

5. T R I P O L E N E A T
estimate values between known data

6.1 Representing Patterns, pages 210–219

**6. a)** Make a table of values for the toothpick pattern.

Figure 1   Figure 2   Figure 3

b) Describe the pattern.

c) Develop an equation relating the number of toothpicks to the figure number.

d) How many toothpicks are in Figure 10? Verify your answer.

e) How do the numerical values in the equation represent the pattern?

7. Derek has $56 in his bank account. He plans to deposit $15 every week for a year.

a) Create a table of values for his first five deposits.

b) What equation models this situation?

c) How much money will Derek have in his account after 35 weeks?

d) How long will it take him to save $500?

8. Taylor works at a shoe store. She makes $50 per day plus $2 for every pair of shoes she sells.

a) Create a table of values to show how much she would earn for selling up to ten pairs of shoes in one day.

b) Develop an equation to model this situation.

c) How much money will Taylor make in a day if she sells 12 pairs of shoes? Use two methods for solving the problem.

6.2 Interpreting Graphs, pages 220–230

9. Many tree planters are paid according to how many trees they plant. The following graph shows the daily wages earned at a rate of $0.09 per tree planted.

Daily Wages for Tree Planters
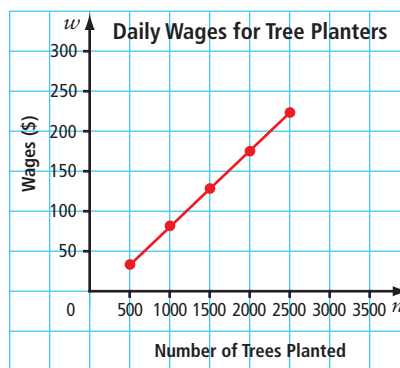
a) Approximately how much would a tree planter who planted 750 trees earn in one day?

b) In order to earn $250 in one day, approximately how many trees would a planter need to plant?

10. The graph shows the relationship between air pressure, in kilopascals, and altitude, in metres.

Air Pressure Changes
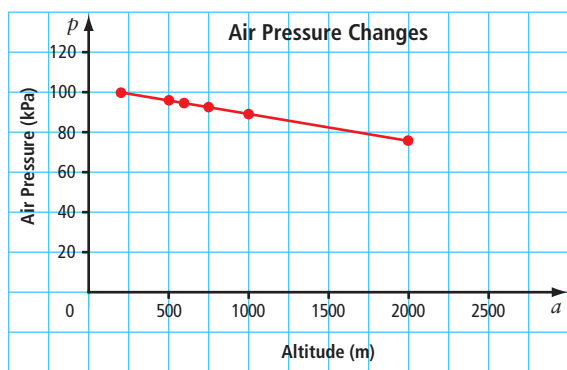
a) What is the approximate air pressure at an altitude of 1500 m? 2400 m?

b) Approximately at what altitude is the air pressure 90 kPa? 60 kPa?

c) Does it make sense to interpolate or extrapolate values on this graph? Explain.

11. There are 15 schools in an urban school district. The table shows data about the student and teacher populations for eight of the schools.

Students	100	250	300	450	700	150	1025	650
Teachers	9	15	17	23	33	11	46	31

a) Graph the relationship between the number of students and teachers.

b) How many teachers might be in a school that has 850 students? 1200 students?

c) How many students might attend a school that employs 30 teachers? 50 teachers?

6.3 Graphing Linear Relations, pages 231–243

12. The cost of renting a snowboard can be calculated using the equation $C = 40 + 20d$, where C is the rental cost, in dollars, and d is the number of rental days.

a) Graph the linear relation for the first five days.

b) From the graph, what is the approximate cost of renting the snowboard for one day? seven days?

c) If buying a snowboard costs $300, use your graph to approximate how many days you could rent a board before it becomes cheaper to buy it.

d) Describe another method you could use to solve parts b) and c).

13. Graph the linear relation represented in the table of values.

Time (h)	Distance (km)
0.5	52.5
1.0	105.0
1.5	157.5
2.0	210.0
2.5	262.5
3.0	315.0
3.5	367.5
4.0	420.0

a) Describe a situation that might lead to these data.

b) Develop a linear equation to model the data.

c) What do the numerical coefficients and constants in the equation tell you?

14. A parking lot charges a flat rate of $3.00 and $1.75 for each hour or part of an hour of parking.

a) Create a table of values for the first 8 h of parking.

b) Graph the linear relation.

c) Use the graph to approximate how much it would cost to park for 4 h.

d) Using the graph, approximately how long could you park if you had $15.25?

e) What equation models this situation?