SAXON

HOMESCHOOL

Middle Grades Sampler

Math 5/4, *Math 6/5*, *Math 7/6*, *Math 8/7*, and *Algebra 1/2*

Math 5/4, *Math 6/5*, *Math 7/6*, *Math 8/7*, and *Algebra ½* form a series of courses to move students from primary grades to algebra. Each course contains a series of daily lessons covering all areas of general math. Each lesson presents a small portion of math content (called an increment) that builds on prior knowledge and understanding.

Students are not required or expected to grasp a concept fully the first time it is presented. After an increment is introduced, it becomes a part of the student's daily work for the rest of the year. Students will have many opportunities to gain understanding and to achieve mastery. This cumulative, continual practice ensures that students will retain what they have learned.

This sampler includes materials that are representative of the Saxon math program, including samples of Lessons and Investigations.

We hope these materials will assist you in your evaluation of the Saxon program.

Math 6/5

Table of Contents

Math 6/5, Lesson 53

Sample taken from Math 6/5 (Third Edition), page 268

LESSON

53 Perimeter • Measures of a Circle

WARM-UP

Facts Practice: 64 Multiplication Facts (Test F)

Mental Math: Count by 6's from 6 to 60. Count by 60's from 60 to 360. How many minutes are 2 hours? ... 3 hours? ... 4 hours? ... 10 hours?

a. 2 hours 15 minutes is how many minutes?

b. 2000 − 500 c. $2\frac{1}{2} + 2\frac{1}{2}$ d. $2\frac{1}{2} - 2\frac{1}{2}$

e. How many minutes is $1\frac{1}{2}$ hours? ... $2\frac{1}{2}$ hours?

f. Find half of 100, ÷ 2, ÷ 5, ÷ 5, × 10, ÷ 5

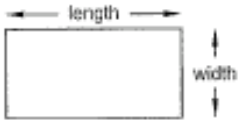
Problem Solving:

The numbers 3, 6, 10, and 15 are examples of triangular numbers. The numbers 4, 9, 16, and 25 are examples of square numbers. Find a two-digit number that is both a triangular number and a square number.

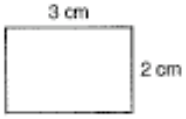
NEW CONCEPTS

Perimeter When line segments enclose an area, a polygon is formed. We can find the distance around a polygon by adding the lengths of all the segments that form the polygon. The distance around a polygon is called the **perimeter**.

We should note that the word *length* has more than one meaning. We have used length to mean the measure of a segment. But length may also mean the longer dimension of a rectangle. We use the word *width* to mean the shorter dimension of a rectangle.



Example 1 What is the perimeter of this rectangle?



Math 6/5, Lesson 53

Sample taken from Math 6/5 (Third Edition), page 269

Solution The perimeter is the distance around the rectangle. This rectangle has a length of 3 cm and a width of 2 cm. The four sides measure 2 cm, 3 cm, 2 cm, and 3 cm. We add the lengths of the sides and find that the perimeter is **10 cm.**

$$2 \text{ cm} + 3 \text{ cm} + 2 \text{ cm} + 3 \text{ cm} = 10 \text{ cm}$$

A **regular polygon** has sides equal in length and angles equal in measure. For example, a square is a regular quadrilateral. Below we show some regular polygons.

If we know the length of one side of a regular polygon, we can find the perimeter of the polygon by multiplying the length of one side by the number of sides.

Example 2 What is the perimeter of this regular triangle?

Solution The perimeter is the total of the lengths of the three sides. We can find this by multiplying the length of one side of the regular triangle by 3.

$$3 \times 12 \text{ inches} = \mathbf{36 \text{ inches}}$$

Measures of a circle A **circle** is a smooth curve. The length of the curve is its **circumference.** So the circumference of a circle is the perimeter of the circle. The **center** of the circle is the "middle point" of the area enclosed by the circle. The **radius** is the distance from the center to the curve. The **diameter** is the distance across the circle through its center. Thus, the diameter of a circle is twice the radius.

Math 6/5, Lesson 53

Sample taken from Math 6/5 (Third Edition), page 270

Activity: *Measuring Circles*

Materials needed:

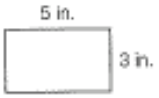
- various circular objects such as paper plates, cups, wheels, and plastic kitchenware lids
- ruler, cloth tape measure, string, or masking tape
- Activity Sheet 20 (available in *Saxon Math 6/5—Homeschool Tests and Worksheets*)

Make a list of some circular objects in your home. Measure the diameter, radius, and circumference of each object, and record the results in the table on Activity Sheet 20.

LESSON PRACTICE

Practice set

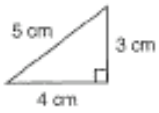
a. What is the length of this rectangle?



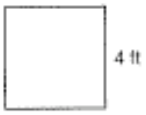
b. What is the width of the rectangle?

c. What is the perimeter of the rectangle?

d. What is the perimeter of this right triangle?



e. What is the perimeter of this square?



f. What do we call the perimeter of a circle?

g. What do we call the distance across a circle through its middle?

h. If the radius of a circle is 6 inches, what is the diameter of the circle?

MIXED PRACTICE

Problem set

1. (49) Atop the beanstalk Jack was excited to discover that the goose had laid 3 dozen golden eggs. Jack took 15 eggs. How many golden eggs were left?

2. (50) There are 13 players on one team and 9 players on the other team. If some of the players from one team join the other team so that the same number of players are on each team, how many players will be on each team?

Math 6/5, Lesson 53

Sample taken from Math 6/5 (Third Edition), page 271

3. (Inv. 3, 46) Draw a diagram to illustrate and solve this problem:

If $\frac{1}{3}$ of the 30 children had blue eyes, how many of the children had blue eyes? What percent of the children had blue eyes?

4. (50) If water is poured from glass to glass until the amount of water in each glass is the same, how many ounces of water will be in each glass?

5. (52) In the number 123,456,789,000, the 2 means which of the following?

A. 2 billion B. 20 billion C. 200 billion

6. (25) Which factors of 8 are also factors of 12?

7. (28, 35) From the year 1820 to 1890 was how many decades?

8. (52) Use digits to write nineteen million, four hundred ninety thousand.

9. (24, 43) $6 + \left(4\frac{2}{3} - 2\right)$

10. (41, 43) $4\frac{2}{3} - \left(2\frac{2}{3} + 2\right)$

11. (29) 300×200

12. (29) 800×70

13. (26, 34) $5T = 500$

14. (51)
$$\begin{array}{r} \$5.64 \\ \times \quad 78 \\ \hline \end{array}$$

15. (51)
$$\begin{array}{r} 865 \\ \times \quad 74 \\ \hline \end{array}$$

16. (51)
$$\begin{array}{r} 983 \\ \times \quad 76 \\ \hline \end{array}$$

17. (13)
$$\begin{array}{r} \$63.14 \\ - \ \$42.87 \\ \hline \end{array}$$

18. (9)
$$\begin{array}{r} 3106 \\ - \quad 875 \\ \hline \end{array}$$

19. (13)
$$\begin{array}{r} \$68.09 \\ \$43.56 \\ \$27.18 \\ + \ \$14.97 \\ \hline \end{array}$$

20. (26) $\$31.65 \div 5$

21. (34) $4218 \div 6$

22. (26) $5361 \div 10$

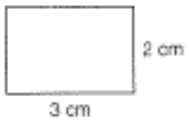
23. (33) Counting by tens, 1236 is closest to which number?

A. 1230 B. 1240 C. 1200 D. 1300

Math 6/5, Lesson 53

Sample taken from Math 6/5 (Third Edition), page 272

24. What is the length of this rectangle? (53)



25. What is the perimeter of this rectangle? (53)

26. To multiply 35 by 21, Christina thought of 21 as 20 + 1. Show two choices Christina has for multiplying the numbers. (51)

27. Write 2,050,000 in expanded notation. (52)

28. Draw an equilateral triangle. (38)

29. Freddy found the circumference of the soup can to be $8\frac{5}{8}$ inches. Round $8\frac{5}{8}$ inches to the nearest inch. (44)

Math 6/5, Lesson 80

Sample taken from Math 6/5 (Third Edition), page 412

LESSON

80 Prime and Composite Numbers

WARM-UP

Facts Practice: 60 Improper Fractions to Simplify (Test H)

Mental Math:

a. How many grams equal one kilogram? A pair of shoes weighs about one kilogram. One shoe weighs about how many grams?

b. 25% of 16 c. 25% of 160 d. $\frac{1}{3}$ of 16

e. 25% of \$20.00 f. $\sqrt{81}$, − 2, ÷ 2, − 1, × 2, − 5

Problem Solving:

Find the next three numbers in this Fibonacci sequence:

1, 1, 2, 3, 5, 8, 13, __, __, __, ...

NEW CONCEPT

We have practiced listing the factors of whole numbers. Some whole numbers have many factors. Other whole numbers have only a few factors. In one special group of whole numbers, each number has exactly two factors.

Below, we list the first ten counting numbers and their factors. Numbers with exactly two factors are **prime numbers.** Numbers with more than two factors are **composite numbers.** The number 1 has only one factor and is neither prime nor composite.

Number	Factors	Type
1	1	
2	1, 2	prime
3	1, 3	prime
4	1, 2, 4	composite
5	1, 5	prime
6	1, 2, 3, 6	composite
7	1, 7	prime
8	1, 2, 4, 8	composite
9	1, 3, 9	composite
10	1, 2, 5, 10	composite

We often think of a prime number as a number that is not divisible by any other number except 1 and itself. Listing prime numbers will quickly give us a feel for which numbers are prime numbers.

Math 6/5, Lesson 80

Sample taken from Math 6/5 (Third Edition), page 413

Example 1 The first three prime numbers are 2, 3, and 5. What are the next three prime numbers?

Solution We list the next several whole numbers after 5. A prime number is not divisible by any number except 1 and itself, so we mark through numbers that are divisible by some other number.

~~6~~, 7, ~~8~~, ~~9~~, ~~10~~, 11, ~~12~~, 13, ~~14~~, ~~15~~, ~~16~~, 17, ~~18~~

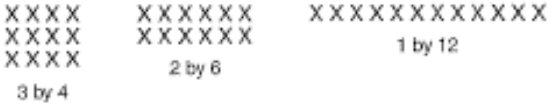
The numbers that are not marked through are prime numbers. The next three prime numbers after 5 are **7, 11**, and **13.**

Every number in the shaded part of this multiplication table has more than two factors. So every number in the shaded part is a composite number.

	1	2	3	4	5	6	7	8	9	10	11
1	1	(2)	(3)	4	(5)	6	(7)	8	9	10	(11)
2	(2)	4	6	8	10	12	14	16	18	20	22
3	(3)	6	9	12	15	18	21	24	27	30	33
4	4	8	12	16	20	24	28	32	36	40	44
5	(5)	10	15	20	25	30	35	40	45	50	55
6	6	12	18	24	30	36	42	48	54	60	66
7	(7)	14	21	28	35	42	49	56	63	70	77
8	8	16	24	32	40	48	56	64	72	80	88

In this multiplication table prime numbers appear *only* in the row and column beginning with 1. We have circled the prime numbers that appear in the table. Even if the table were extended, prime numbers would appear only in the row and column beginning with 1.

We can use arrays to illustrate the difference between prime and composite numbers. An **array** is a rectangular arrangement of numbers or objects in rows and columns. Here we show three different arrays for the number 12:



Twelve is a composite number, which is demonstrated by the fact that we can use **different pairs** of factors to form arrays for 12. By turning the book sideways, we can actually form three more arrays for 12 (4 by 3, 6 by 2, and 12 by 1), but these arrays use the same factor pairs as the arrays shown above.

Math 6/5, Lesson 80

Sample taken from Math 6/5 (Third Edition), page 414

For the prime number 11, however, there is only **one pair** of factors that forms arrays: 1 and 11.

XXXXXXXXXXX

1 by 11

Example 2 Draw three arrays for the number 16. Use different factor pairs for each array.

Solution The multiplication table can guide us. We see 16 at 4 × 4 and at 2 × 8. So we can draw a 4-by-4 array and a 2-by-8 array. Of course, we can also draw a 1-by-16 array.

XXXX
XXXX
XXXX
XXXX

4 by 4

XXXXXXXX
XXXXXXXX

2 by 8

XXXXXXXXXXXXXXXX

1 by 16

LESSON PRACTICE

Practice set

a. The first four prime numbers are 2, 3, 5, and 7. What are the next four prime numbers?

b. List all the factors of 21. Is the number 21 prime or composite? Why?

c. Which counting number is neither prime nor composite?

d. Draw two arrays of X's for the composite number 9. Use different factor pairs for each array.

MIXED PRACTICE

Problem set

1. *(49, 70)* The local store buys one dozen pencils for 96¢ and sells them for 20¢ each. How much profit does the store make on a dozen pencils?

2. *(21, 77)* A small car weighs about 1 ton. If its 4 wheels carry the weight evenly, then each wheel carries about how many pounds?

3. *(25)* List the numbers that are factors of both 8 and 12.

4. *(80)* The first five prime numbers are 2, 3, 5, 7, and 11. What are the next three prime numbers?

Math 6/5, Lesson 80

Sample taken from Math 6/5 (Third Edition), page 415

5. (79) By what fraction name for 1 should $\frac{3}{4}$ be multiplied to make $\frac{9}{12}$?

$$\frac{3}{4} \times \frac{?}{?} = \frac{9}{12}$$

6. (79) Write a fraction equal to $\frac{1}{2}$ that has a denominator of 6. Then write a fraction equal to $\frac{2}{3}$ that has a denominator of 6. What is the sum of the fractions you wrote?

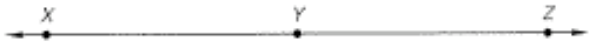
7. (80) Think of a prime number. How many different factors does it have?

8. (23, 59) Arrange these numbers in order from least to greatest:

$$\frac{3}{8}, \frac{4}{6}, \frac{5}{6}, \frac{6}{12}, \frac{7}{7}$$

9. (46, 74) One mile is 1760 yards. How many yards is $\frac{1}{8}$ mile?

10. (61) XZ is 84 millimeters. XY equals YZ. Find XY.



11. (70) \$8.43 + 68¢ + \$15 + 5¢

12. (73) 6.505 − 1.4

13. (70) \$12 − 12¢

14. (17) \$18.07 × 6

15. (20) $6w$ = \$76.32

16. (78) 2^5

17. (54) $70\overline{)4791}$

18. (58) Divide 365 by 7. Write the quotient as a mixed number.

19. (76) $\frac{3}{4}$ of $\frac{3}{4}$

20. (76) $\frac{3}{2} \times \frac{3}{2}$

21. (79) $\frac{3}{10} = \frac{?}{100}$

22. (75) $3\frac{2}{3} + 1\frac{2}{3}$

23. (83) $5 - \frac{1}{5}$

24. (41) $\frac{7}{10} - \frac{7}{10}$

25. (28) It is evening. What time will be shown by this clock in $6\frac{1}{2}$ hours?

Math 6/5, Lesson 80

Sample taken from Math 6/5 (Third Edition), page 416

26. (52) The Sun is about 92,956,000 miles from Earth. Which digit in 92,956,000 is in the millions place?

27. (78) The Sun is about 150,000,000 kilometers from Earth. Write that distance in expanded notation using powers of 10.

28. (Inv. 7) Is the sequence below arithmetic or geometric? Find the next two terms in the sequence.

2, 4, 8, 16, _____, _____, ...

29. (57) As the coin was tossed, the team captain called, "Heads!" What is the probability that the captain's guess was correct?

30. (71) The fraction $\frac{4}{5}$ is equivalent to 0.8 and 80%. Write 0.8 and 80% as unreduced fractions.

Math 6/5, Lesson 91

Sample taken from Math 6/5 (Third Edition), page 476

LESSON

91 Simplifying Improper Fractions

WARM-UP

Facts Practice: 40 Fractions to Reduce (Test I)

Mental Math:

Roman numerals:†

a. Write 13 in Roman numerals.

b. Write VIII in our number system.

Problem Solving:

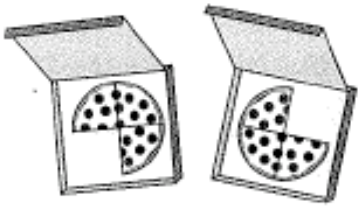
This table lists the years from 2001 to 2006 and the day of the week on which each year begins. Notice that each year begins one day of the week later than the first day of the previous year until 2005. Since 2004 is a leap year and has an additional day, the year 2005 begins an additional day later. Copy this table and continue it through the year 2015, which begins on a Thursday.

Year	First Day
2001	Monday
2002	Tuesday
2003	Wednesday
2004	Thursday
2005	Saturday
2006	Sunday

NEW CONCEPT

We have learned two ways to simplify fractions. We have converted improper fractions to whole numbers or mixed numbers, and we have reduced fractions. In some cases we need to use **both** ways in order to simplify a fraction. Consider the following story:

After the party some pizza was left over. There was $\frac{3}{4}$ of a pizza in one box and $\frac{3}{4}$ of a pizza in another box. Altogether, how much pizza was in the two boxes?



†In Lessons 91–105, the Mental Math section "Roman numerals" reviews concepts from Appendix Topic A. We suggest you complete Appendix Topic A before beginning this lesson.

Math 6/5, Lesson 91

Sample taken from Math 6/5 (Third Edition), page 477

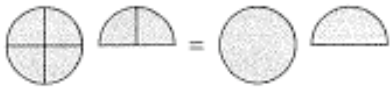
In this story about combining, we add $\frac{3}{4}$ to $\frac{3}{4}$.

$$\frac{3}{4} + \frac{3}{4} = \frac{6}{4}$$

We see that the sum is an improper fraction. To convert an improper fraction to a mixed number, we divide the numerator by the denominator and write the remainder as a fraction.

$$\frac{6}{4} \longrightarrow 4\overline{)6}^{\,1\frac{2}{4}}$$
$$\frac{4}{2}$$

The improper fraction $\frac{6}{4}$ is equal to the mixed number $1\frac{2}{4}$. However, $1\frac{2}{4}$ can be reduced.



$$1\frac{2}{4} = 1\frac{1}{2}$$

The simplified answer to $\frac{3}{4} + \frac{3}{4}$ is $1\frac{1}{2}$.

Example 1 Write $\frac{8}{6}$ as a reduced mixed number.

Solution To convert $\frac{8}{6}$ to a mixed number, we divide 8 by 6 and get $1\frac{2}{6}$. Then we reduce $1\frac{2}{6}$ by dividing both terms of the fraction by 2 to get $\mathbf{1\frac{1}{3}}$.

$$\frac{8}{6} = 1\frac{2}{6} \xrightarrow{\text{CONVERT}} 1\frac{2}{6} = \mathbf{1\frac{1}{3}} \xrightarrow{\text{REDUCE}}$$

Example 2 Add: $1\frac{7}{8} + 1\frac{3}{8}$

Solution We add to get $2\frac{10}{8}$. We convert the improper fraction $\frac{10}{8}$ to $1\frac{2}{8}$ and add it to the 2 to get $3\frac{2}{8}$. Finally, we reduce the fraction to get $\mathbf{3\frac{1}{4}}$.

$$1\frac{7}{8} + 1\frac{3}{8} \xrightarrow{\text{ADD}} 2\frac{10}{8} = 3\frac{2}{8} \xrightarrow{\text{CONVERT}} 3\frac{2}{8} = \mathbf{3\frac{1}{4}} \xrightarrow{\text{REDUCE}}$$

Math 6/5, Lesson 91

Sample taken from Math 6/5 (Third Edition), page 478

LESSON PRACTICE

Practice set* Simplify each fraction or mixed number:

a. $\frac{6}{4}$ b. $\frac{10}{6}$ c. $2\frac{8}{6}$ d. $3\frac{10}{4}$

e. $\frac{10}{4}$ f. $\frac{12}{8}$ g. $4\frac{14}{8}$ h. $1\frac{10}{8}$

Perform each indicated operation. Simplify your answers.

i. $1\frac{5}{6} + 1\frac{5}{6}$ j. $2\frac{3}{4} + 4\frac{3}{4}$ k. $\frac{5}{3} \times \frac{3}{2}$

l. Each side of this square is $\frac{5}{8}$ inches long. What is the perimeter of the square? Show your work.

MIXED PRACTICE

Problem set

1. (40) Two fathoms deep is 12 feet deep. How deep is 10 fathoms?

2. (49) When Jessica baby-sits, she is paid $6.50 per hour. If she baby-sits Saturday from 10:30 a.m. to 3:30 p.m., how much money will she be paid?

3. (52) Use digits to write the number one hundred fifty-four million, three hundred forty-three thousand, five hundred fifteen.

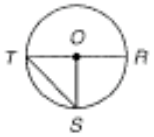
4. (67) (a) How many quarter-mile laps does Jim have to run to complete 1 mile?

   (b) How many quarter-mile laps does Jim have to run to complete 5 miles?

5. (75, 79) Write a fraction equal to $\frac{3}{4}$ that has a denominator of 8. Add that fraction to $\frac{5}{8}$. Remember to convert the answer to a mixed number.

6. (40, 61) What mixed number names the number of shaded hexagons?

7. (53, 61) Which segment does *not* name a radius of this circle?



A. $\overline{OR}$ B. $\overline{OS}$

C. $\overline{RT}$ D. $\overline{OT}$

Math 6/5, Lesson 91

Sample taken from Math 6/5 (Third Edition), page 479

8. (89) Compare: $\frac{1}{2}$ of 2 ◯ $2 \times \frac{1}{2}$

9. (83) What is the shape of a can of beans?

10. (61, 73) *AB* is 3.2 cm. *BC* is 1.8 cm. *CD* equals *BC*. Find *AD*.

11. (91) $1\frac{3}{4} + 1\frac{3}{4}$

12. (81) $5\frac{7}{8} - 1\frac{3}{8}$

13. (88, 91) $3 \times \frac{3}{8}$

14. (24, 70) \$10 − (\$1.25 + 35¢)

15. (17)
$$\begin{array}{r} \$4.32 \\ \times \quad 5 \\ \hline \end{array}$$

16. (56)
$$\begin{array}{r} 416 \\ \times \ 740 \\ \hline \end{array}$$

17. (24, 73) 4.51 − (2.3 + 0.65)

18. (34) 960 ÷ 8

19. (54) $80\overline{)9600}$

20. (26, 34) $5m = \$12.00$

21. (78, 91) $\frac{5}{2} \times \frac{2}{3}$

22. (87) $\frac{2}{3} \div \frac{1}{3}$

23. (87) $\frac{2}{3} \div \frac{1}{6}$

Use this information to answer problems 24 and 25:

Tyrone fixed his function machine so that when he puts in a 3, a 9 comes out. When he puts in a 6, an 18 comes out. When he puts in a 9, a 27 comes out.

24. (Inv. 7) Which of the following does Tyrone's function machine do to the numbers he puts into it?

A. It adds 3.

B. It multiplies by 3.

C. It adds 9.

D. It multiplies by 2 and 3.

25. (Inv. 7) Tyrone put in a number, and a 12 came out. What number did he put in?

Math 6/5, Lesson 91

Sample taken from Math 6/5 (Third Edition), page 480

26. Assuming that the sequence below repeats with period 3, write the next 5 terms. (Inv. 7)

4, 4, 1, 4, 4, ...

The days of the week are Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. Make a list of the number of letters in each name. Friday, for instance, has 6 letters and Saturday has 8. Refer to your list of numbers to answer problems 27–30.

27. What number is the median? (84)

28. What number is the mode? (84)

29. What is the range? (84)

30. Find the mean and write it as a mixed number. (84)

Math 6/5, Investigation 11

Sample taken from Math 6/5 (Third Edition), page 573

INVESTIGATION 11

Focus on

Scale Drawings

A **scale drawing** is a picture or diagram of a figure that has the same shape as the figure but is a different size. Below is a scale drawing of the bedroom shared by Jane and Alicia. Notice the legend to the right of the picture. It shows that 1 centimeter in the picture represents 4 feet in the actual bedroom. The equivalence 1 cm = 4 ft is called the **scale.**

Since 1 cm in the picture represents 4 ft in the actual bedroom, we also know the following relationships:

2 cm represents 8 ft (since $2 \times 4 = 8$)

3 cm represents 12 ft (since $3 \times 4 = 12$)

4 cm represents 16 ft (since $4 \times 4 = 16$)

5 cm represents 20 ft (since $5 \times 4 = 20$)

If we measure the picture, we find that it is 5 cm long and 3 cm wide. This means that the actual bedroom is 20 ft long and 12 ft wide.

1. What is the actual distance between the beds?
2. What is the actual length and width of the closet?
3. What is the actual area of the entire room? What is the area if you subtract the area of the closet?

Measurements in the picture may be fractions of centimeters. For example, a measurement of 0.5 cm $\left(\frac{1}{2}\text{ cm}\right)$ represents $\frac{1}{2}$ of 4 ft. (Remember that the word *of,* when used with fractions, tells us to multiply.)

$$\frac{1}{2} \text{ of } 4 \text{ ft} = \frac{1}{2} \times 4 \text{ ft} = 2 \text{ ft}$$

Math 6/5, Investigation 11

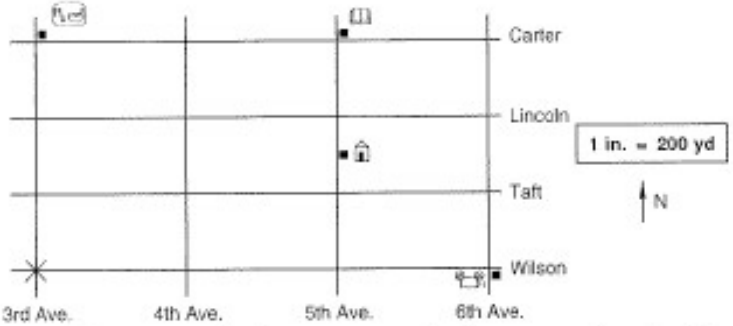
Sample taken from Math 6/5 (Third Edition), page 574

4. What is the actual length and width of the beds?

5. What is the actual length and width of the desk?

6. What actual length does a measurement of $1\frac{1}{4}$ cm represent? Can you identify an object in the picture that is about that long?

Andrew is on the corner of Wilson and 3rd Avenue. His position is marked by the "×" on the scale drawing below. Andrew's home is halfway between Taft and Lincoln on 5th Avenue; it is marked by the symbol ⌂.



For problems 7–10 below, assume Andrew travels only along the streets shown.

7. How far is Andrew from the movie theater (🎬) at the corner of Wilson and 6th Avenue?

8. How far is he from the drugstore (💊) on the corner of Carter and 3rd Avenue?

9. How far is he from the library (🏛) on the corner of Carter and 5th Avenue? Describe three different routes he could take that all give the least distance.

10. How far is Andrew from his home?

11. Measure the straight-line distance in inches between Andrew's starting point and the corner of Carter and 5th Avenue. From this measurement, estimate the actual straight-line distance in yards.

A familiar type of scale drawing is a map. On a certain map of New York City, the scale is 6 cm = 1 mi. This means that 6 centimeters on the map represents 1 mile of actual distance.

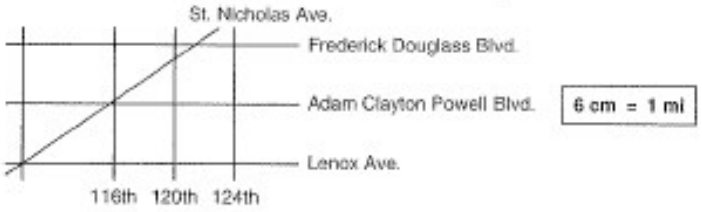
Math 6/5, Investigation 11

12. What length on the map corresponds to an actual distance of 3 miles? What length on the map corresponds to an actual distance of $\frac{1}{2}$ mile?

13. What fraction of a mile corresponds to 1 cm on the map? What fraction of a mile is represented by 5 cm?

14. What length on the map represents an actual distance of $2\frac{1}{6}$ miles?

15. Part of the New York City map is shown below. Estimate the actual distance between Frederick Douglass Boulevard and Lenox Avenue as a fraction of a mile. (Use the shortest distance between the two roads.)

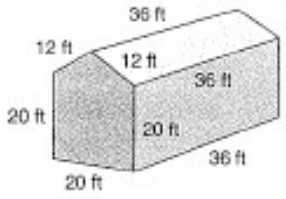


Extensions

a. Draw a scale picture of the kitchen in your home. Include the stove, refrigerator, and other important items. Make your scale 1 in. = 2 ft.

b. Obtain a street map of your city or a nearby city. Using the legend on the map, estimate the shortest distance between your home and a park of your choice, using the road system rather than a straight-line distance. Describe the route you chose.

c. We can make **scale models** of 3-dimensional figures. Model trains and action figures are examples of scale models. Using cardboard and glue or tape, make a scale model of the barn below. Use the scale 1 cm = 4 ft. Note that the front and the back of the barn are pentagons.



Sample taken from Math 6/5 (Third Edition), page 575