

# Measuring to the Nearest $\frac{1}{4}$ Inch

NCTM Standards 1, 4, 6, 7, 8, 9, 10

Measure each segment to the nearest quarter inch.

1   in.

2   in.

3   in.

4   in.

5   in.

6   in.

7   in.

8 Find a book in your classroom. Measure its height to the nearest quarter inch.



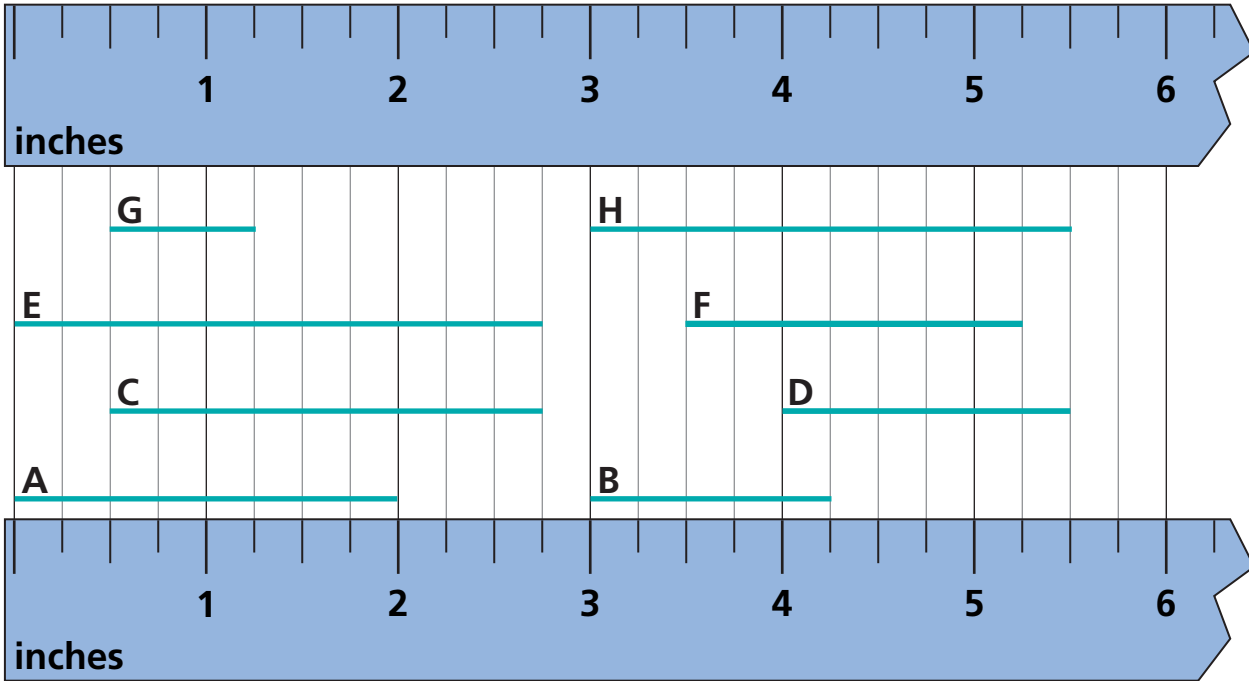
in.

9 Measure the length of one of your crayons to the nearest quarter inch.



in.

10 Measure each segment to the nearest quarter inch.



A:  in.

C:  in.

E:  in.

G:  in.

B:  in.

D:  in.

F:  in.

H:  in.



11 Write the names of the segments in order from shortest to longest. Explain how you determined the order to write the segments.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

12 **Challenge** Sums of lengths:

A + B:  in.    C + F:  in.

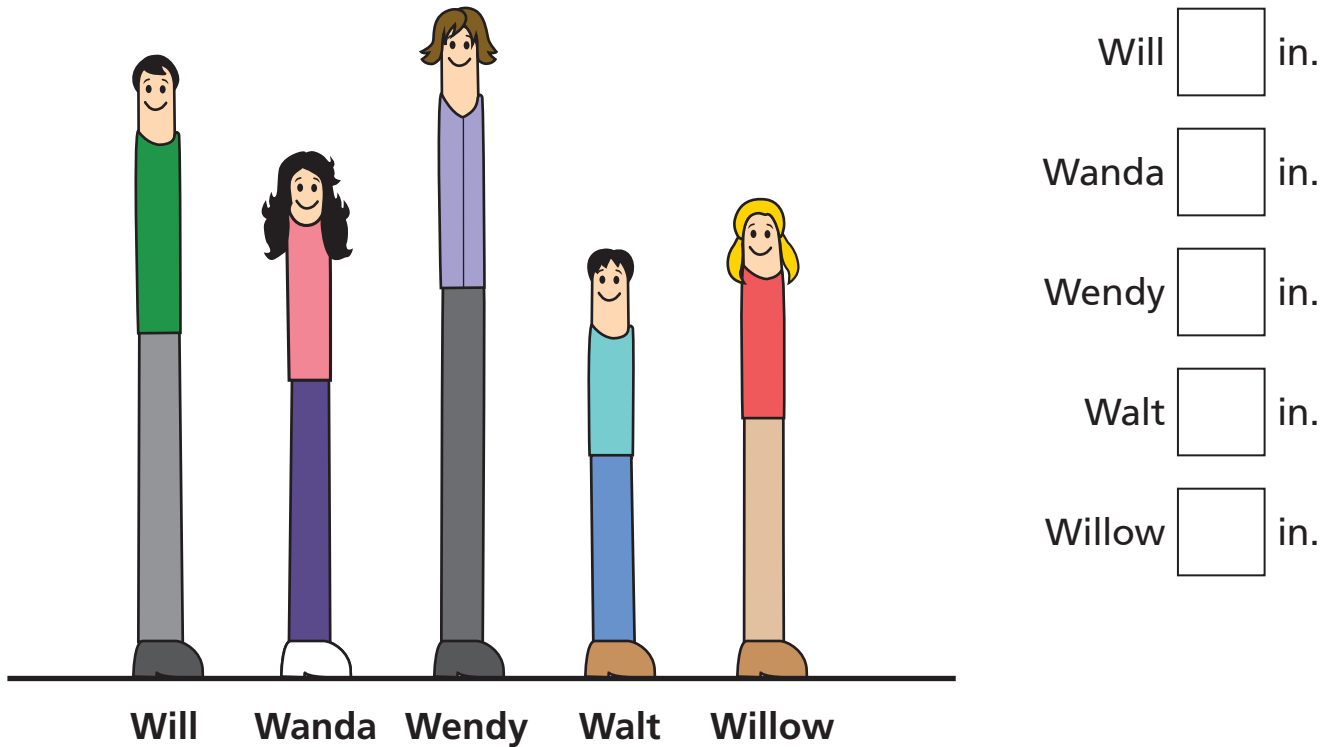
13 **Challenge** Differences between lengths:

A - D:  in.    F - G:  in.

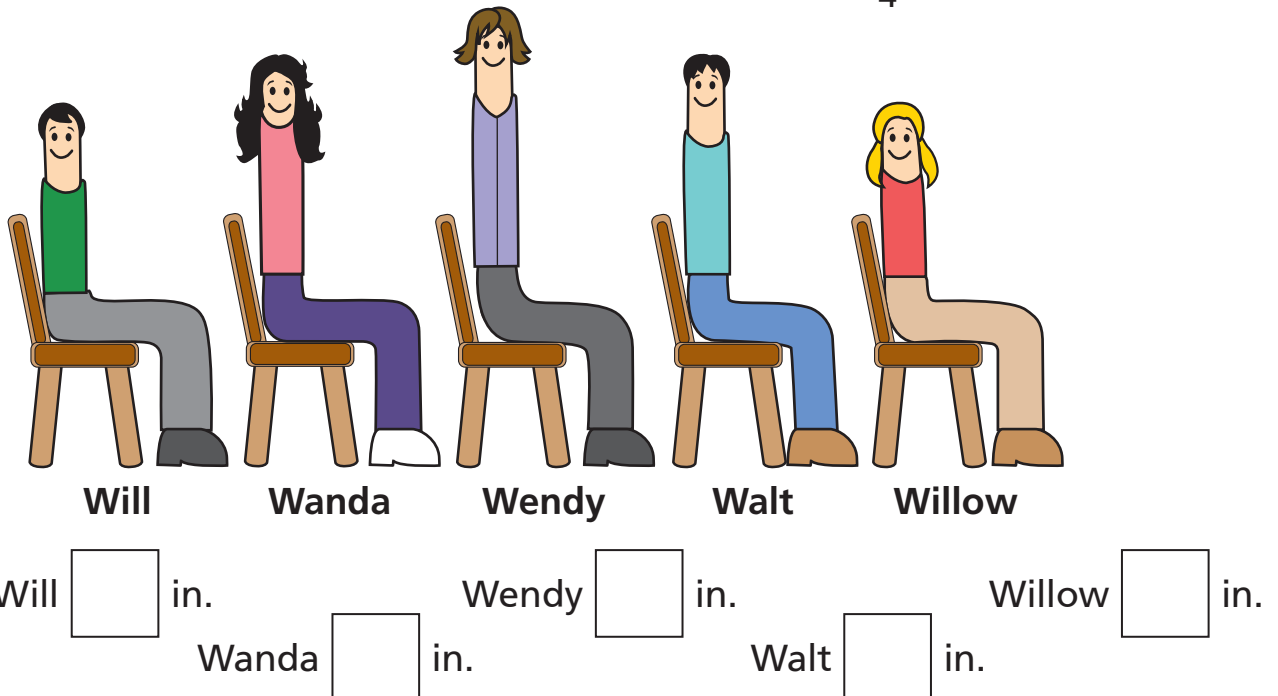
# Measuring Heights

NCTM Standards 1, 4, 5, 6, 7, 8, 9, 10

- 1 Measure the worms' standing heights to the nearest  $\frac{1}{4}$  inch.



- 2 Measure the worms' seated heights to the nearest  $\frac{1}{4}$  inch.



3 Convert the measurements from feet to inches.

inches = 2 feet       inches = 2 feet

inches = 3 feet       inches = 4 feet

inches = 5 feet       inches = 6 feet

4 Convert the measurements from just inches to feet and inches.

50 inches =  feet  inches

54 inches =  feet  inches



5 Explain how to convert a measurement from inches to feet and inches.

---

---

---

6 **Challenge** The distance around Min's head is 20 inches. Her arm length is  $\frac{1}{2}$  foot more than that. Her height is twice as much as her arm length.

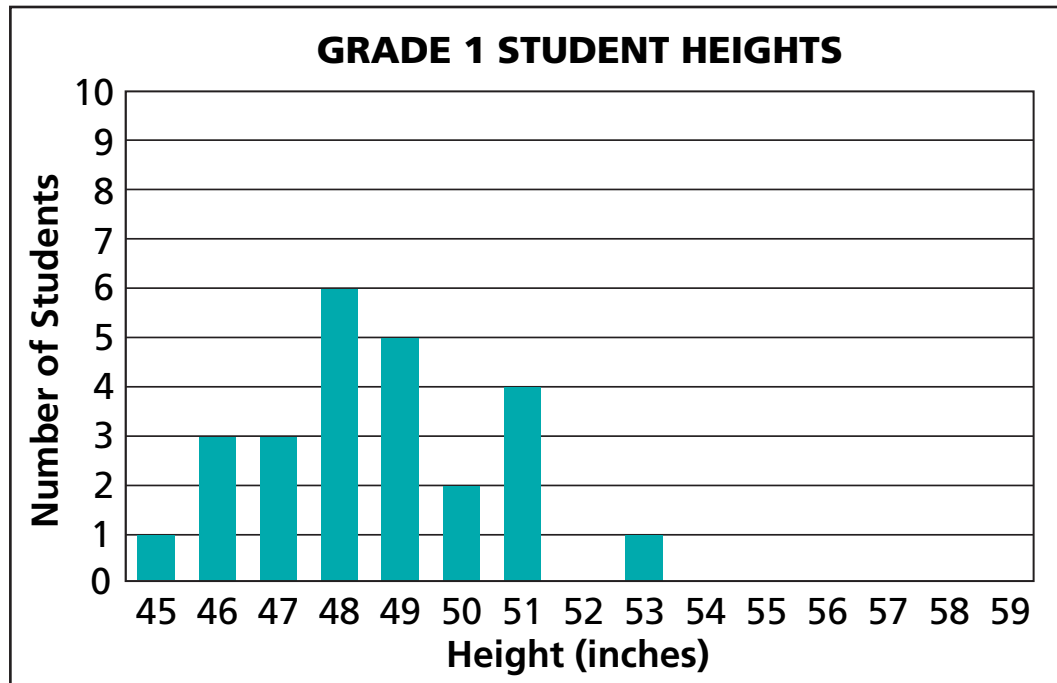
Min's head       in. =  ft  in.

Min's arm length       in. =  ft  in.

Min's height       in. =  ft  in.

# Comparing Measurements

NCTM Standards 1, 4, 5, 6, 7, 8, 9, 10



- 1 What is the height of the tallest student in Grade 1?

 in.


- 2 What is the height of the largest number of students? Explain.

 in.

- 3 If all the students line up from tallest to shortest, what is the height of the student in the middle?

 in.

- 4 If we choose any one student at random from Grade 1, what would most likely be his or her height?

 in.

**Use the class bar graphs of standing and seated heights to fill in the blanks.**

5 How many students have a seated height of about 30 inches?  students

---

6 How many students are taller than 55 inches standing up?  students

---

7 About half the class is less than  inches tall.

---

8 The seated height of the largest number of students is  inches.

---

9 How many students are more than 53 inches tall, but less than 58 inches tall?  students

---

10 If you choose one student at random from the class, what is most likely the seated height for that student?  inches



**11 Challenge** Make up your own question about the bar graphs and answer it.

---

---

---

---

# Measuring in Centimeters

NCTM Standards 1, 4, 7, 8, 9, 10

- 1 Measure each segment to the nearest centimeter.

Diagram showing seven line segments labeled A through G. Segment A is a short diagonal line sloping down to the right. Segment B is a short horizontal line sloping slightly up to the right. Segment C is a very short diagonal line sloping down to the right. Segment D is a short diagonal line sloping up to the right. Segment E is a short diagonal line sloping down to the right. Segment F is a long horizontal line sloping slightly down to the right. Segment G is a long diagonal line sloping up to the right.

A	B	C	D	E	F	G

Draw a segment to match each length.

- 2 8 cm

---

- 3 4 cm

---

- 4 measures 3 cm when rounded to the nearest centimeter, but is longer than 3 cm

---

- 5 Explain how you decided on the length of the segment in Problem 4.

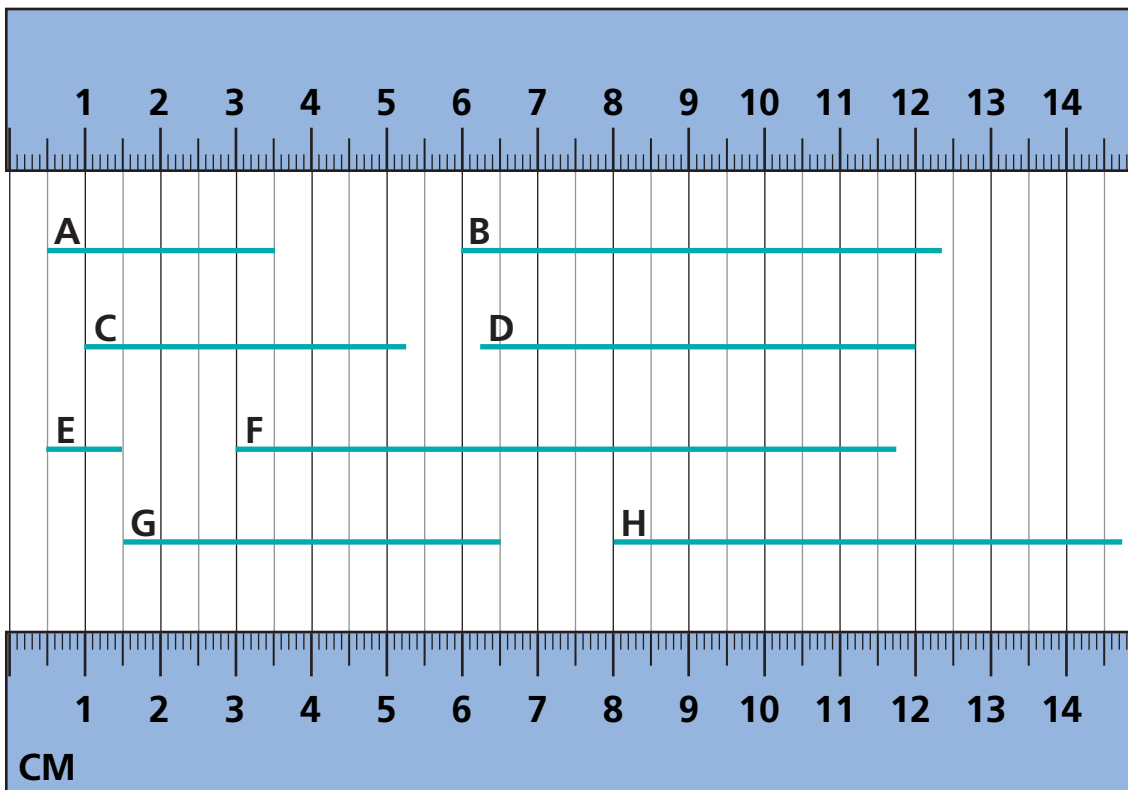
---



---



---



6 Measure each segment to the nearest centimeter.

A: <input type="text"/> cm	C: <input type="text"/> cm	E: <input type="text"/> cm	G: <input type="text"/> cm
B: <input type="text"/> cm	D: <input type="text"/> cm	F: <input type="text"/> cm	H: <input type="text"/> cm

7 Write the names of the segments in order from shortest to longest.

\_\_\_\_\_

8 **Challenge** Which is longer: 3 inches or 7 centimeters?  
How much longer?

\_\_\_\_\_



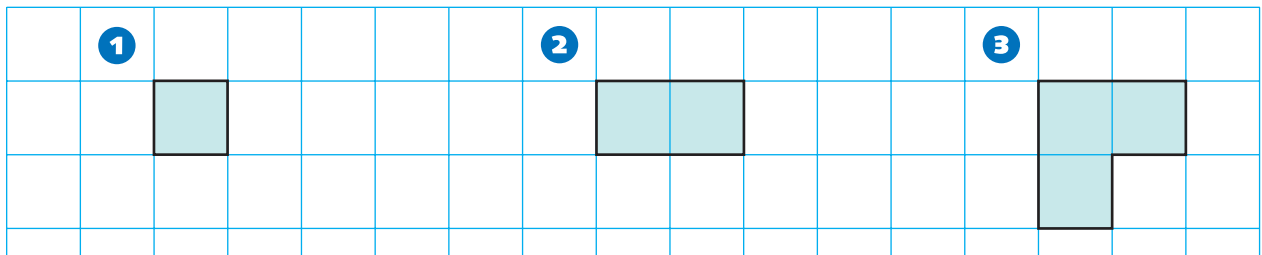
# Area and Perimeter

NCTM Standards 1, 3, 4, 8, 10

**A** on this page is *area*. Here is one unit of area:  (1 sq cm)

**P** on this page is *perimeter*. Here is a 1 cm unit of perimeter:  or 

Find the area and the perimeter for each figure.



A:  sq cm

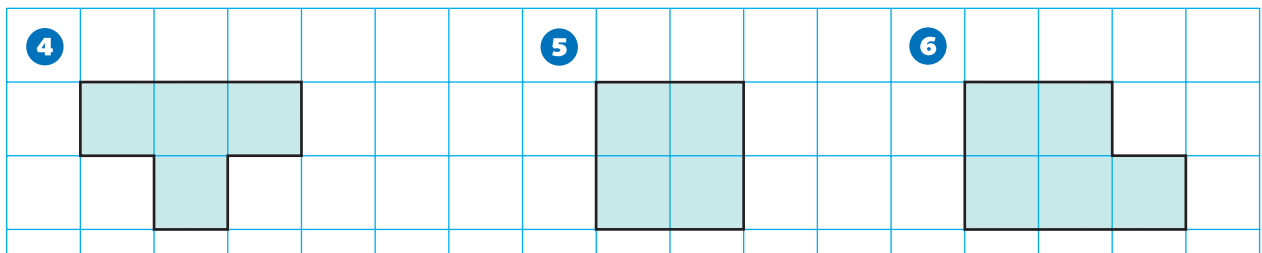
P:  cm

A:  sq cm

P:  cm

A:  sq cm

P:  cm



A:  sq cm

P:  cm

A:  sq cm

P:  cm

A:  sq cm

P:  cm

- 7 Use a ruler to measure the perimeter of each figure to the nearest centimeter.

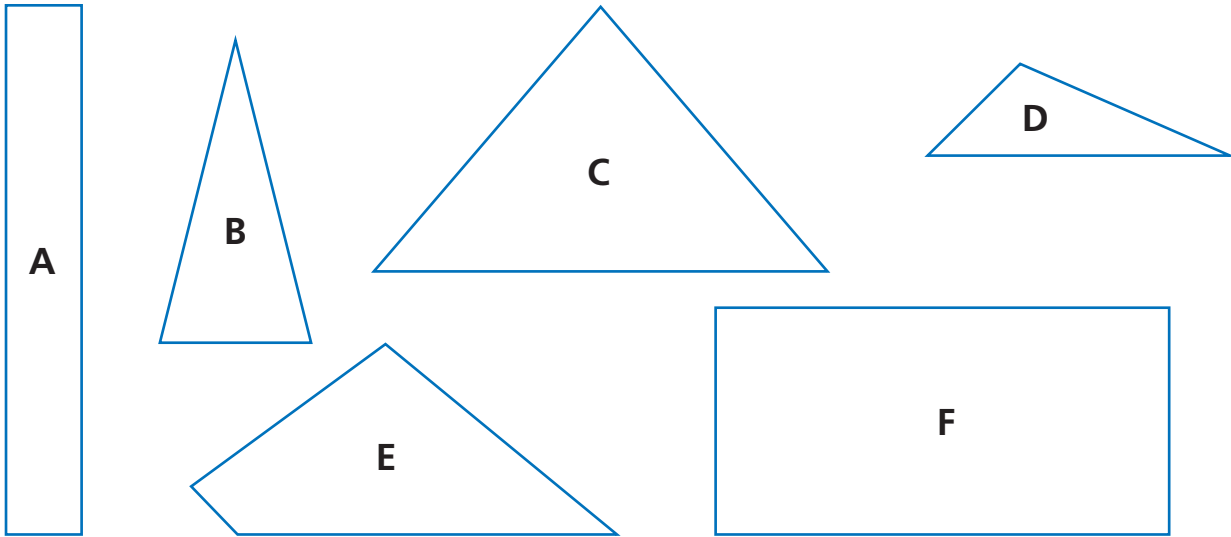


Figure	A	B	C	D	E	F
Perimeter	cm	cm	cm	cm	cm	cm

- 8 How did you find the perimeter of each figure?

---



---

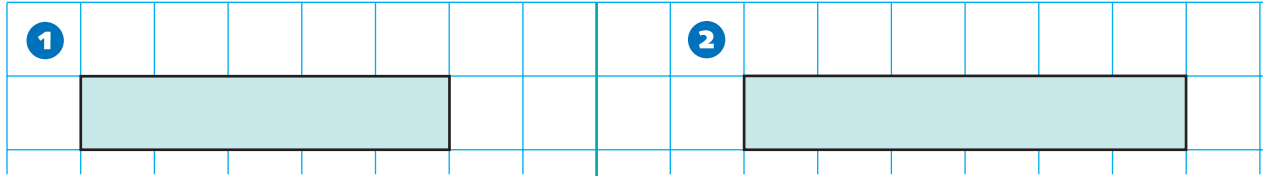
- 9 **Challenge** Draw two figures with an area of 7 sq cm but different perimeters.

P: <input style="width: 40px; height: 20px;" type="text"/> cm	P: <input style="width: 40px; height: 20px;" type="text"/> cm
---	---

# More Area and Perimeter

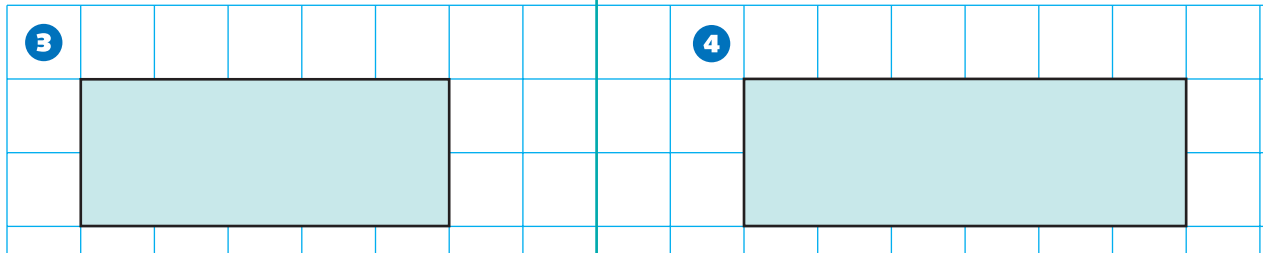
NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

Find the area and perimeter for each rectangle.



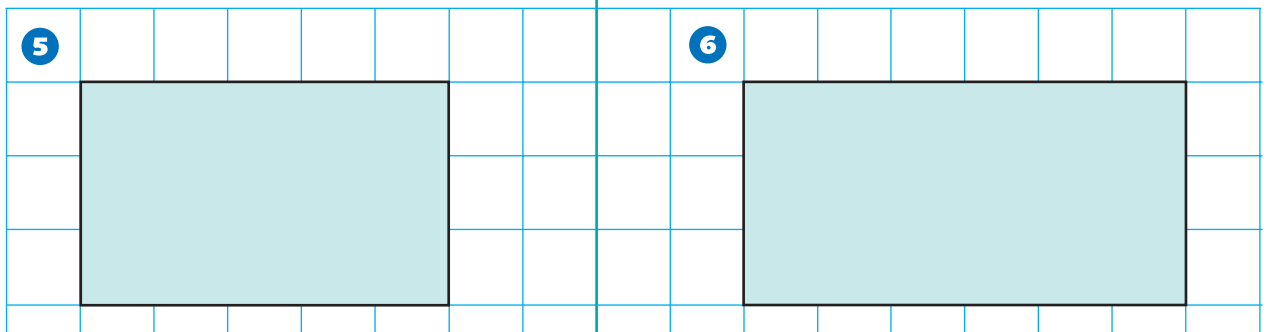
A:  sq cm      P:  cm

A:  sq cm      P:  cm



A:  sq cm      P:  cm

A:  sq cm      P:  cm

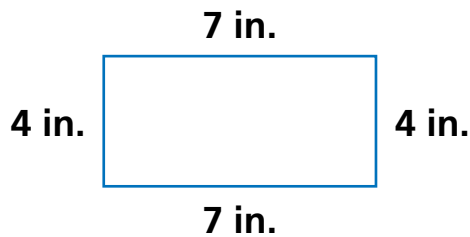


A:  sq cm      P:  cm

A:  sq cm      P:  cm

**Read and solve.**

- 7 Max traced around his calculator and made a rectangle like this:



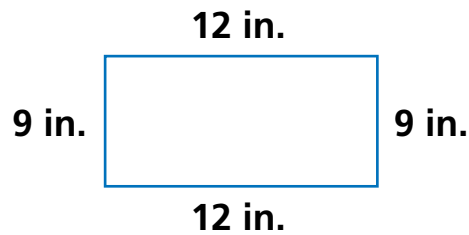
The area of Max's figure is:

sq in.

The perimeter of Max's figure is:

in.

- 8 Suni's gerbil cage is 12 inches long and 9 inches wide.



How much area does her gerbil

cage have?  sq in.

How far is one lap around the

edge of the cage?  in.

- 9 Jan drew a square with a perimeter of 28 inches. What was the area of Jan's square?

sq in.



- 10 Chris made a square with square tiles that each had an area of 1 sq in. The square was made with 64 tiles. What was the perimeter of the square? Explain.

in.

- 11 Challenge** A rectangular garden has an area of 20 square feet. It is surrounded by 24 feet of fence. What are the length and width of the garden?

# Measuring Volume

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

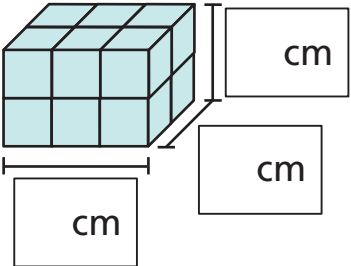
**Dana built a box with centimeter cubes that measured 3 cm from left to right, 5 cm from front to back, and 3 cm from top to bottom. Build a model of Dana's box.**

1 How many cubes did Dana need to make her box?  cubes

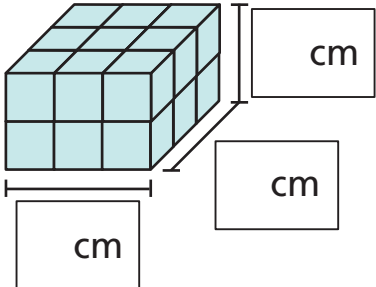
2 What was the volume of Dana's box?  cubic cm

3 Dana added more cubes to her box, so she had a new box that was 4 cm from top to bottom. The other measurements stayed the same. How many more cubes did she need?  cubes

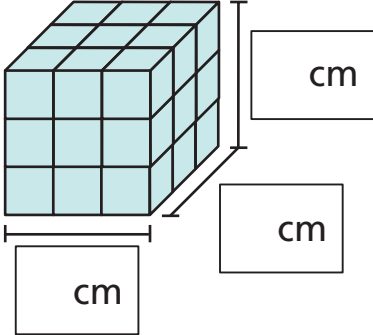
**Fill in the measurements and the volume for each box.**

4 

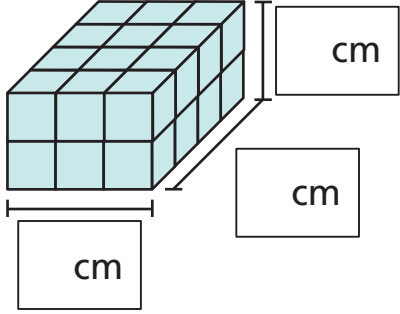
Volume:  cubic cm

5 

Volume:  cubic cm

6 

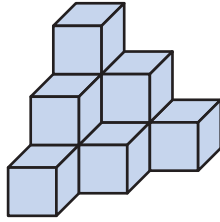
Volume:  cubic cm

7 

Volume:  cubic cm

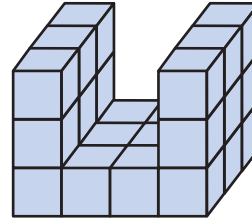
**Build each model and find its volume.**

8



Volume:  cubic cm

9



Volume:  cubic cm



10 Seth built a rectangular box with centimeter cubes. He started by building a square. Then he built five more identical levels. The volume of his box was 54 cubic cm. What were its measurements? Explain.

---



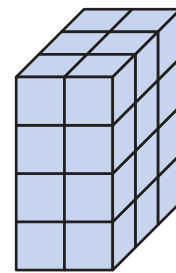
---



---

**Challenge** This box was built with centimeter cubes. Amy wants to cover it with wrapping paper.

How many square centimeters of paper will Amy need to cover . . .



Front

11 just the front face?  sq cm

12 just the top?  sq cm

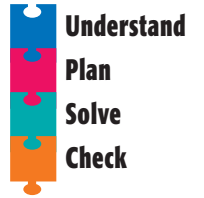
13 just the right side?  sq cm

14 the entire box?  sq cm

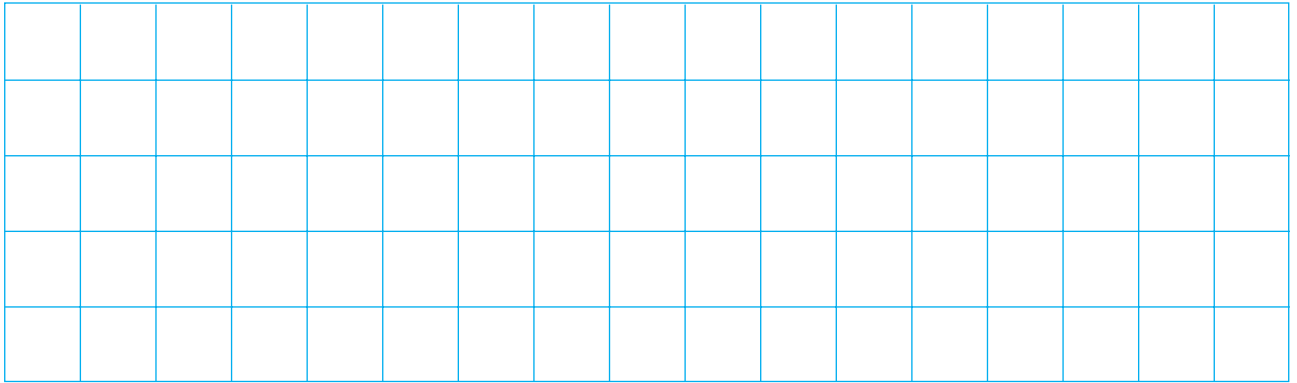
# Problem Solving Strategy

## Draw a Picture

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10



- 1 Jaden used square tiles to build an L-shaped figure with an area of 8 sq cm and a perimeter of 14 cm. Draw a picture of a figure like Jaden's.



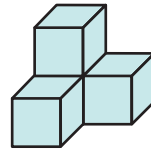
Miya made buildings out of centimeter cubes using a pattern. Find the volume of each building.

2



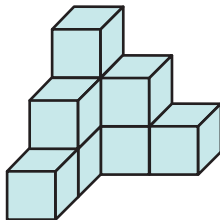
Volume:  cubic cm

3



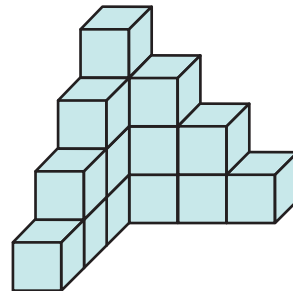
Volume:  cubic cm

4



Volume:  cubic cm

5



Volume:  cubic cm

- 6 Make the next building in the pattern using centimeter cubes and find its volume.

cubic cm

# Problem Solving Test Prep

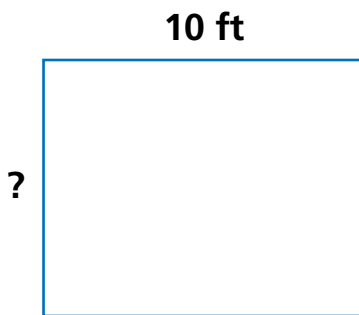
Choose the correct answer.

- 1 There are 58 students in the Math Club. There are 8 more girls in the club than there are boys. How many girls are in the Math Club?
- A. 25 girls
  - B. 28 girls
  - C. 33 girls
  - D. 50 girls
- 2 Megan has two pennies, one nickel, and two dimes in her pocket. She needs 35 cents to buy a snack. What other coins does she need to buy a snack?
- A. two pennies, one nickel
  - B. three pennies, one nickel
  - C. two pennies, one dime
  - D. three pennies, one dime

## Show What You Know

Solve each problem. Explain your answer.

- 3 A rectangular patio has an area of 90 square feet. The length of the patio is 10 feet.



What is the width of the patio?  
Explain how you know.

---

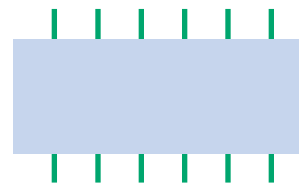
---

---

---

---

- 4 Randy is looking at a map with 24 intersections. He sees 6 vertical lines on the map.



How many horizontal lines are on the map? Explain how you know.

---

---

---

---

---



# Chapter 10

Name \_\_\_\_\_ Date/Time \_\_\_\_\_

## Review/Assessment

NCTM Standards 1, 4, 6, 7, 8, 9, 10

Measure to the nearest  $\frac{1}{4}$  inch. Lessons 1 and 2

1 \_\_\_\_\_  inches

2 \_\_\_\_\_  inches

Measure to the nearest centimeter. Lesson 4

3 \_\_\_\_\_  centimeters

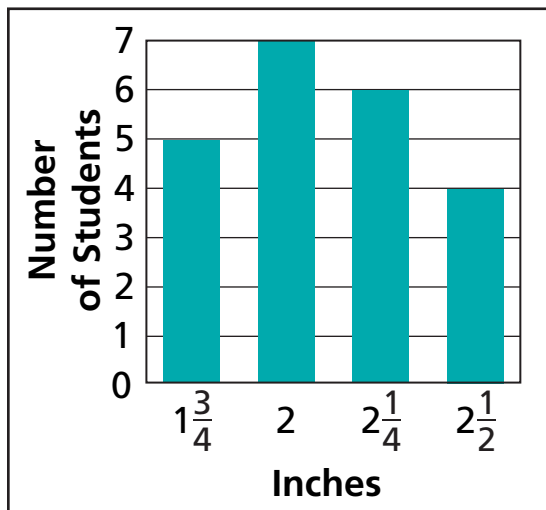
4 \_\_\_\_\_  centimeters

Draw a segment for the given length.

5  $3\frac{1}{4}$  inches

6 11 cm

Some students measured the lengths of their erasers and made this graph. Lesson 3



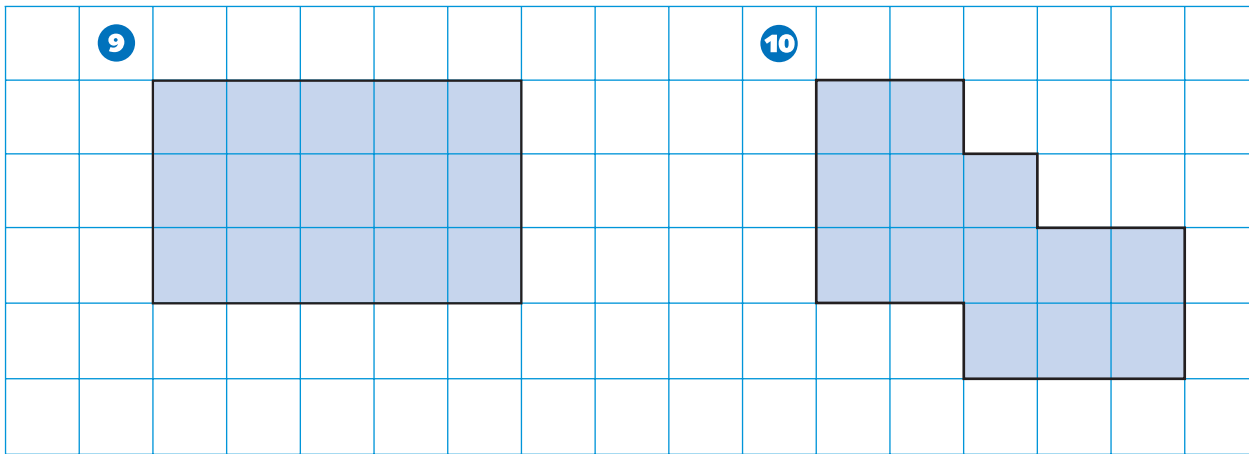
7 How many students have erasers that are longer than 2 inches?

students

8 What is the length of the longest eraser?

inches

Find the perimeter (P) and area (A) of each figure. Lessons 5 and 6



P:  cm

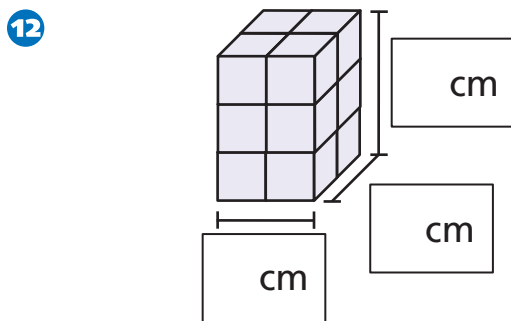
A:  sq cm

P:  cm

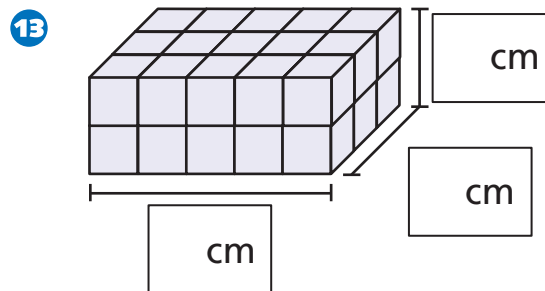
A:  sq cm

11 Nick drew a rectangle with a length of 4 cm and a width of 2 cm. What was its area? What was its perimeter? Lesson 8

These boxes were built with centimeter cubes. Fill in the measurements and the volume of each box. Lesson 7



Volume:  cubic cm



Volume:  cubic cm