Unit 8, Lesson 7

Ways to Find Unknown Length (Part 1)

Let's find the perimeter of different shapes.

Warm-up

Number Talk: Multiple Thirds

Find the value of each expression mentally.

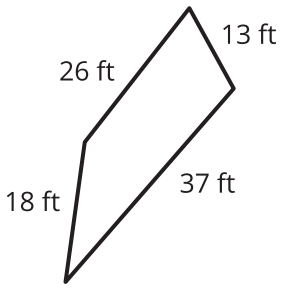
- $6 \times \frac{1}{3}$
- $30 \times \frac{1}{3}$
- $60 \times \frac{2}{3}$
- $90 \times \frac{2}{3}$

Activity 1

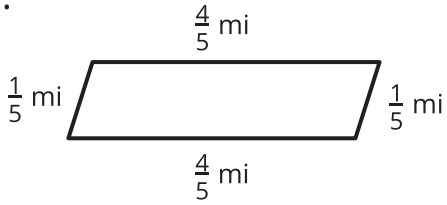
All the Way Around

1. Find the perimeter of each shape. Write an expression that shows how you find the perimeter.

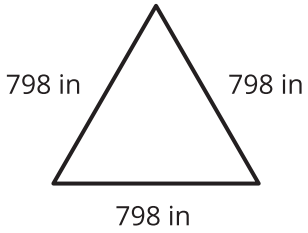
a.



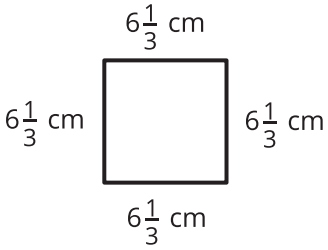
b.



c.



d.



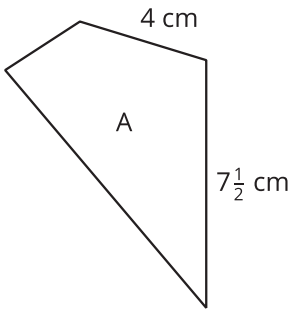
2. Compare your expressions with your partner's expressions. Make 1–2 observations.

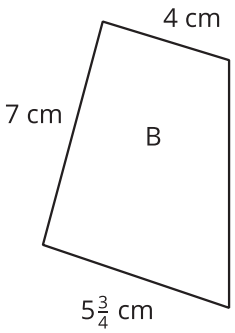
Activity 2

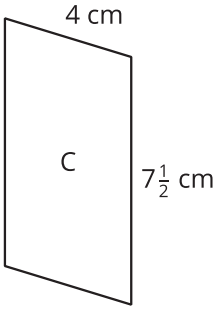
Ponder Perimeter

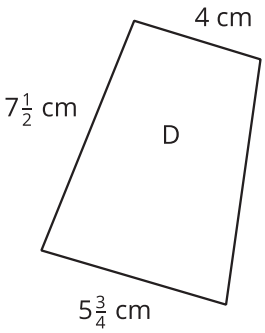
Here are 4 quadrilaterals and what we know about them:

- A, B, and C have no lines of symmetry.
- A has no parallel sides.
- B has 1 pair of parallel sides.
- C has 2 pairs of parallel sides.
- D has 1 pair of parallel sides and 1 line of symmetry.









Mai says, "We can't find the perimeter of any of these shapes because each one is missing labels for one or more side lengths."

Andre disagrees. He says, "We can find the perimeters for C and D but not for A and B."

1. Do you agree with either of them? Explain or show your reasoning.

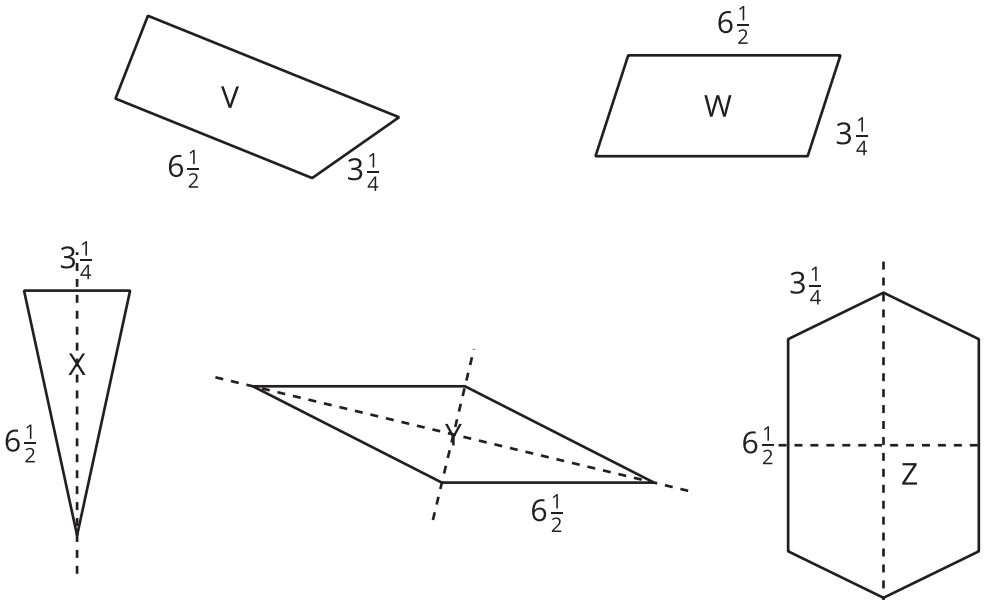
2. Find the perimeters that can be found, if any.

Activity 3

Perimeter Expressions

Here are 5 figures and what we know about them.

- Not all the side lengths are labeled.
- The lines of symmetry are shown.
- Only the triangle has no parallel sides.



1. For which figures is it possible to find the perimeter? For which figures is it not possible? Explain your reasoning.

2. Here are 4 expressions. Each expression represents the perimeter of one of the figures. The $6\frac{1}{2}$ and $3\frac{1}{4}$ in each expression represent side lengths. Which expression represents which figure?

   a. $(2 \times 6\frac{1}{2}) + 3\frac{1}{4}$

   b. $4 \times 6\frac{1}{2}$

   c. $(2 \times 6\frac{1}{2}) + (4 \times 3\frac{1}{4})$

   d. $(2 \times 6\frac{1}{2}) + (2 \times 3\frac{1}{4})$