Dimensions Math
Grade 5 Letter Home #7

Chapter 7 Measurement

Dimensions Math
Letters Home

Home Connection

In Chapter 7, your child will review measurement conversions and learn how to find the area of rectangles and triangles. They will also learn how to find the area of figures composed of multiple rectangles as well as figures composed of rectangles and triangles. The side lengths of the rectangles will consist of fractional lengths, building on the skills that students learned in Chapter 5.

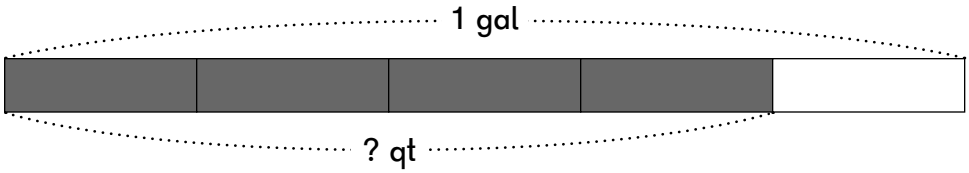
For the measurement-conversion lessons, your child will be provided with a common measurement conversion chart. This can be used as a reference when solving problems.

Customary Conversions	
1 ft ..... 12 in	1 lb ..... 16 oz
1 yd ..... 3 ft	1 day ..... 24 h
1 qt ..... 4 c	1 min ..... 60 s
1 gal ..... 4 qt	1 h ..... 60 min

Metric Conversions	
1 km .... 1,000 m	1 L ..... 1,000 mL
1 m ..... 100 cm	1 kg ..... 1,000 g
1 cm ..... 10 mm	

Example:

A jug holds 1 gal of water. It is $\frac{4}{5}$ full. How many quarts of water are in the jug? Express the answer as a mixed number in simplest form.

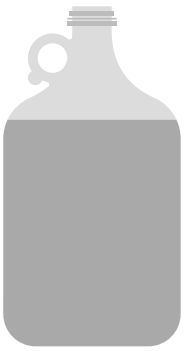


1 gal = 4 qt

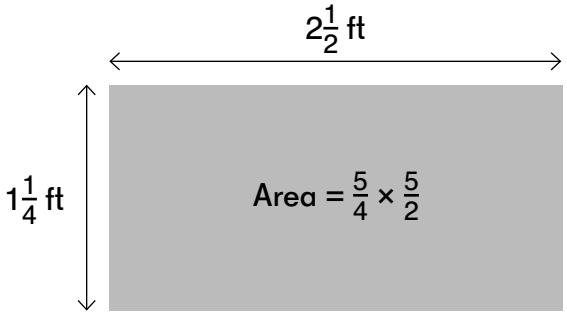
$\frac{4}{5}$ gal = $\frac{4}{5} \times 4$ qt

$= \frac{16}{5}$ qt

$= 3\frac{1}{5}$ qt

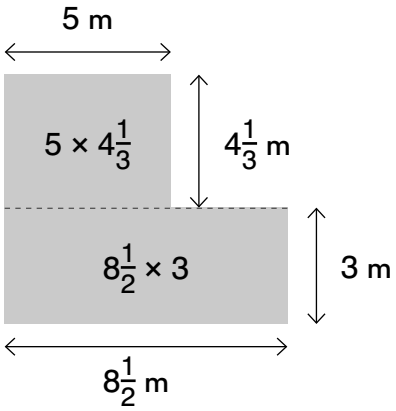


When calculating the area of a rectangle, your child may remember from Dimensions Math 4 the formula Area = Length × Width. In this chapter, students will solve problems where there may be fractional side lengths. As students have learned, mixed numbers will need to be converted into improper fractions before solving.



Area = Length × Width $\longrightarrow 1\frac{1}{4} \times 2\frac{1}{2} \longrightarrow \frac{5}{4} \times \frac{5}{2} = \frac{25}{8} = 3\frac{1}{8}$ ft²

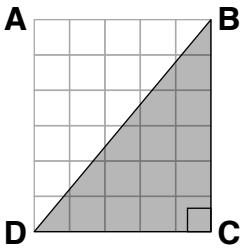
When finding the area of figures composed of multiple rectangles, your child will calculate the figures separately and then add them together.



To solve: $(5 \times 4\frac{1}{3}) + (8\frac{1}{2} \times 3)$

Another way to determine the area of the above figure would be to calculate the area of the entire shape as if it were whole, and then subtract the missing portion.
To solve: $(8\frac{1}{2} \times 7\frac{1}{3}) - (4\frac{1}{3} \times 3\frac{1}{2})$

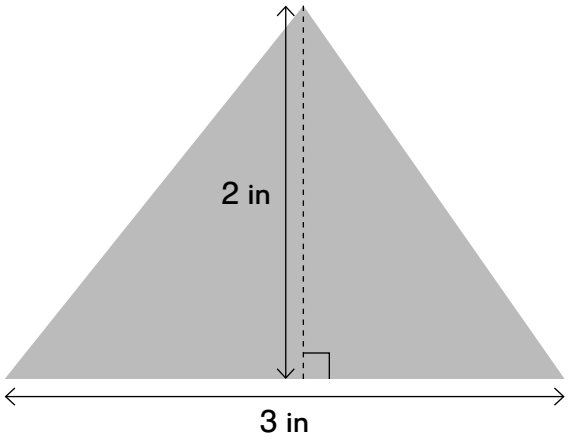
The final concept that your child will learn in Chapter 7 is how to find the area of a triangle. They will learn that every triangle is one half of a rectangle, regardless of shape or size. Your child will learn how to identify a base and a height for the triangle, and how to use Area = $\frac{1}{2} \times B \times H$ to solve.

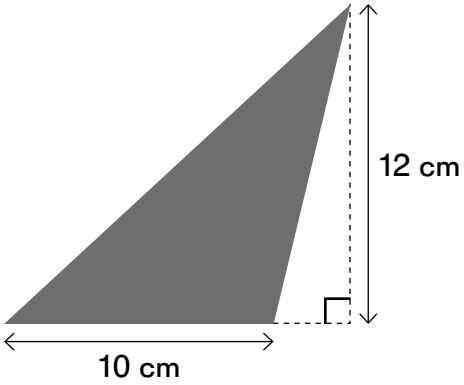


By counting the 1 cm by 1 cm squares, we can see:
Area of Rectangle ABCD = 5 x 6 = 30 cm^2
Area of Triangle BCD = $\frac{1}{2} \times 5 \times 6 = 15$ cm^2

We could instead make a larger triangle ACD and subtract the area of Triangle BCD.

In some cases, the height needs to be found by drawing a line perpendicular to the base.





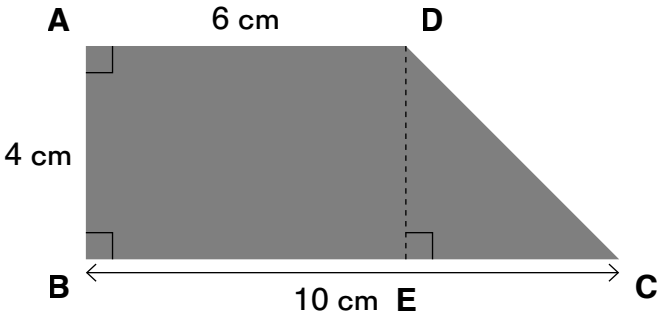
Area = $\frac{1}{2} \times 3 \times 2$

= 3 in^2

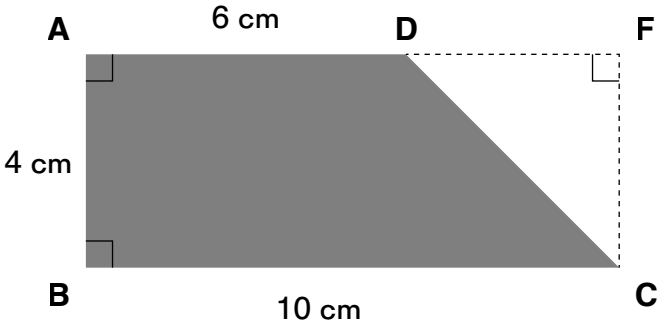
Area = $\frac{1}{2} \times 10 \times 12$

= 60 cm^2

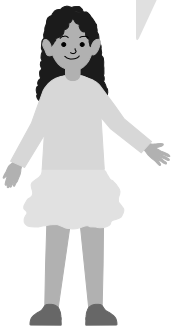
Finally, students will find the area of shapes composed of rectangles and triangles:



I cut the figure into a rectangle and a triangle and added the areas.



I made a larger rectangle and subtracted the area of triangle CDF.



Area of Rectangle ABCF = $10 \times 4 = 40$ cm²

Area of Triangle CDF = $\frac{1}{2} \times (10 - 6) \times 4 = 8$ cm²

Area of Figure ABCD = $40 - 8 = 32$ cm²

What can we do at home?

- Involving your child in the kitchen can be a fun way to practice measurement. Try doubling the recipe, halving the recipe, and converting measurements.
- A fun way to practice calculating the area of a rectangle at home is to measure a wall and calculate the area. Take it up a level to determine how many gallons of paint would be needed to cover the space. How many cups or pints would that be?