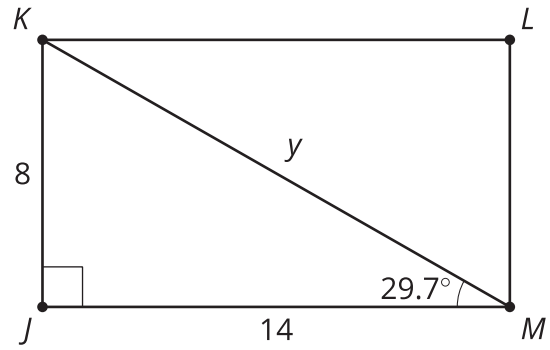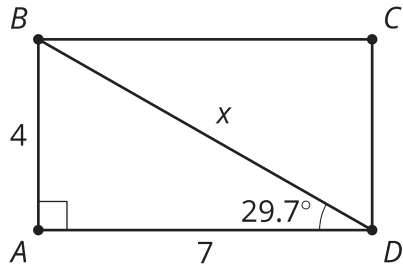# Unit 4 Lesson 2: Half a Square

1 Diagonals of Rectangles (Warm up)

Student Task Statement
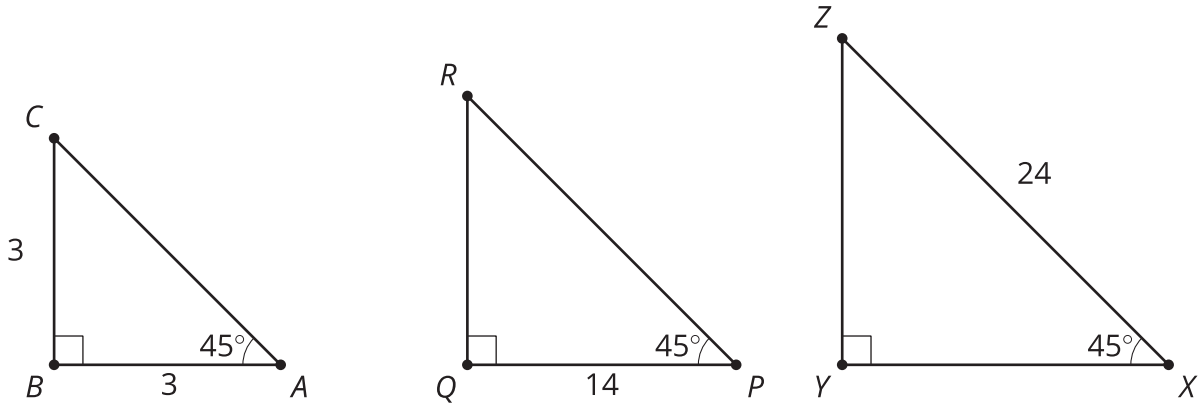

Calculate the values of x and y.

2 Decomposing Squares (Optional)

Student Task Statement

1. Draw a square with side lengths of 1 cm. Estimate the length of the diagonal. Then calculate the length of the diagonal.

2. Measure the side length and diagonal length of several squares, in centimeters. Compute the ratio of side to diagonal length for each.

3. Make a conjecture.

3 Generalize Half Squares (Optional)

Student Task Statement

C
3
B   3   A   45°

R
Q   14   P   45°

Z
24
Y   45°   X

Calculate the lengths of the 5 unlabeled sides.

Images for Activity Synthesis

A right triangle with a vertical leg labeled s on the left, a horizontal leg labeled s on the bottom, a hypotenuse labeled $s\sqrt{2}$, a $45°$ angle at the top, a $45°$ angle at the bottom right, and a right angle at the bottom left.