

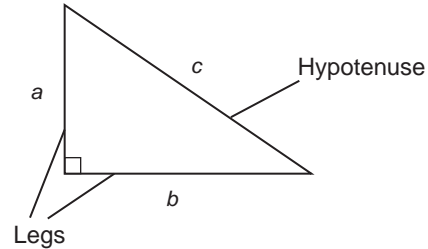
School-to-Career Activity

(Use with Lesson 10-4)

Craftsperson

Suppose you are a craftsperson and you make your own designs. You need some templates for right triangles that can be used in various designs for quilts, woodworking, stained glass, and so on. Because using whole number measurements in your designs is the easiest and gives the most precise results, the right-triangle templates should consist of sides with whole number lengths.

You decide to make your own set of right-triangle templates having leg measurements of 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 inches. Complete the chart to show the necessary whole-number lengths of the hypotenuse and other leg to make each template.



Right-Triangle Templates		
Leg a	Leg b	Hypotenuse c
3 inches	4	5
4 inches	3	5
5 inches	12	13
6 inches	8	10
7 inches	24	25
8 inches	6	10
9 inches	12	15
10 inches	24	26
11 inches	60	61
12 inches	16	20

- Are there any cases for which there is more than one template possible for a given leg length a ? If so, give an example.

For values of $a = 8, 9,$ and $12,$ there is more than one template possible: other options are $(8, 15, 17); (9, 40, 41); (12, 9, 15), (12, 35, 37),$ and $(12, 5, 13).$

- Are there any cases for which the same template can be used for more than one value of a ? If so, give an example.

**$a = 3$ and $a = 4$ (hypotenuse = 5);
 $a = 5$ and $a = 12$ (hypotenuse = 13);
 for $a = 6$ and $a = 8$ (hypotenuse = 10);
 $a = 9$ and $a = 12$ (hypotenuse = 15)**