PROJECT 7 · Finding Areas with Standard Methods

Use any method you want to find the area of each polygon below. Record the area in the table to the right. You can use different methods with different figures. If you use any area formulas, remember that height is always measured perpendicular to the base you choose. Measure base and height very carefully.

Figure	Area
A	about _____ cm²
B	about _____ cm²
C	about _____ cm²
D	about _____ cm²
E	about _____ cm²
F	about _____ cm²

1 cm²
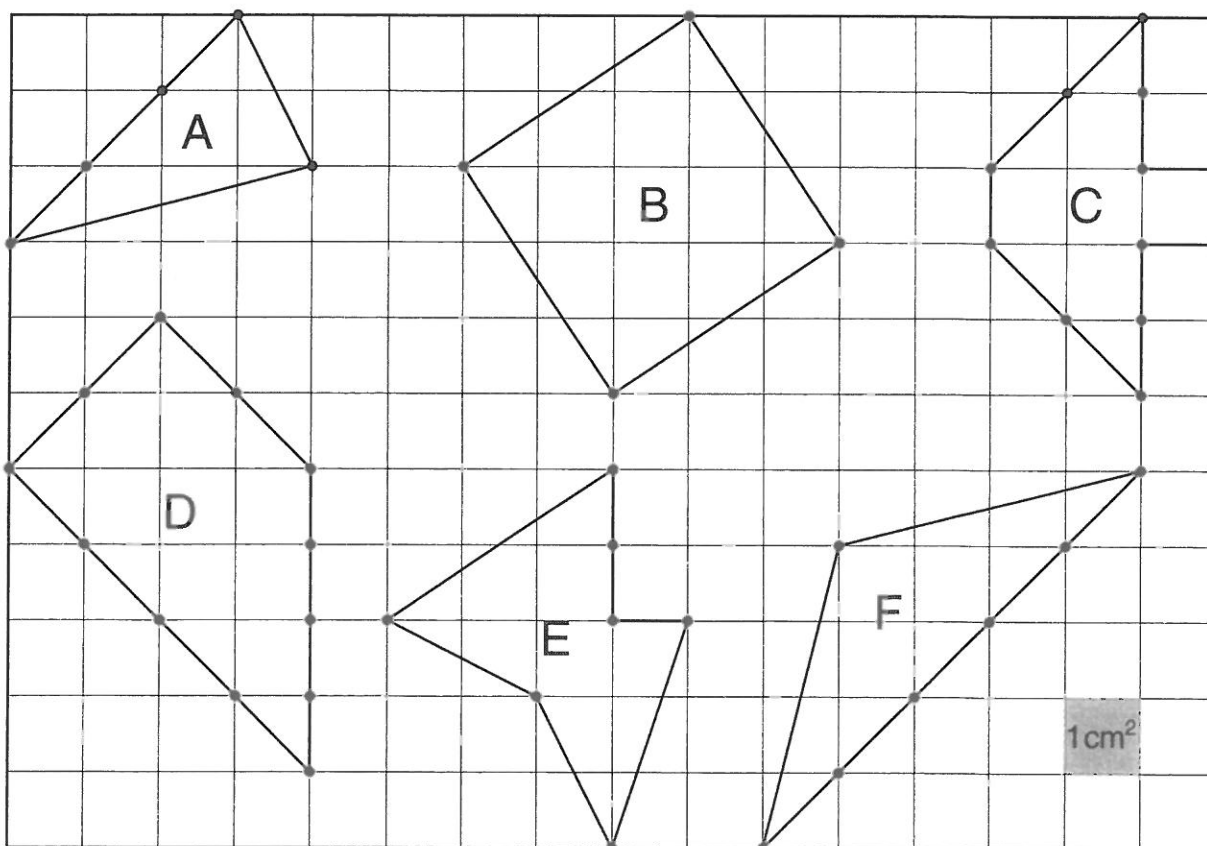
PROJECT 7

Finding Areas with Pick's Formula
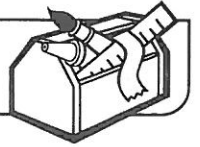
Read the paragraphs below, and then use Pick's Formula to find the areas of the polygons on the previous page. Record your results in the table below. Compare them to the results you recorded in the table on the previous page. You should expect some differences—measures are always estimates.

Pick's Formula for Finding Polygon Areas by Counting

In 1899, Georg Pick, an Austrian mathematician, discovered a formula for finding the area of a polygon on a square grid (such as graph paper). If a polygon has its vertices at grid points, its area can be found by counting the number of grid points on the polygon (P) and the number of grid points in the interior of the polygon (I) and then by using the formula $A = (\frac{1}{2} * P) + I - 1$. The unit of area is one square on the grid.

For figure B on the previous page, the unit of area is cm².

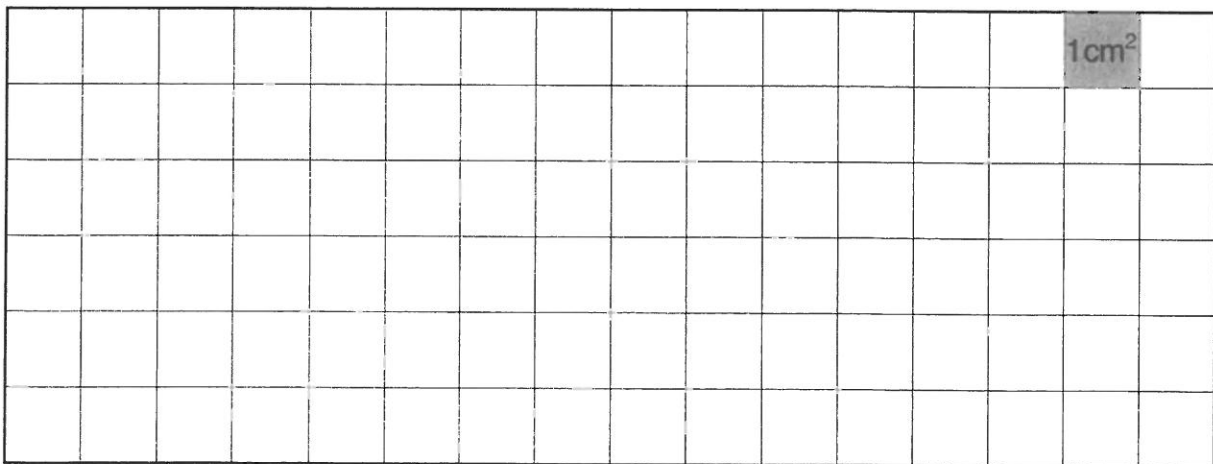$P = 4$ (grid points on polygon)

$I = 12$ (grid points in interior)

$A = (\frac{1}{2} * P) + I - 1$

$\quad = (\frac{1}{2} * 4) + 12 - 1$

$\quad = 13$ cm²

Figure	P	I	Area $= (\frac{1}{2} * P) + I - 1$
A			cm²
B			cm²
C			cm²
D			cm²
E			cm²
F			cm²

Draw two polygons. Be sure that the vertices are at grid points. Use Pick's Formula to find the areas of the polygons.

1cm²
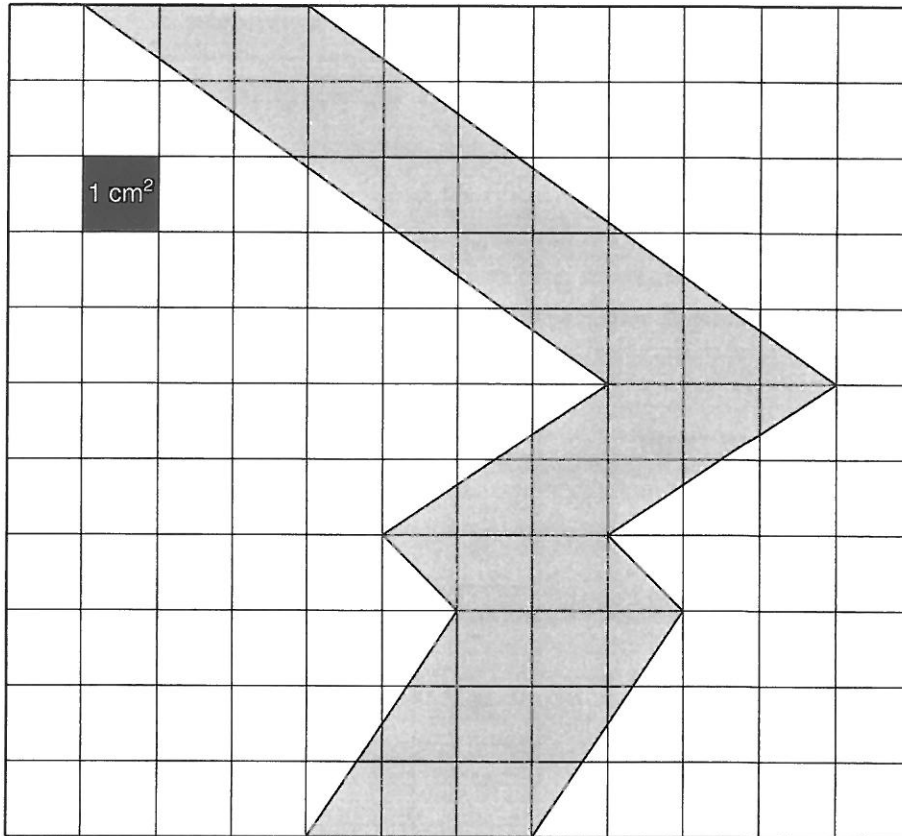
Area: _____   Area: _____

PROJECT 7

Finding Areas with Pick's Formula *cont.*
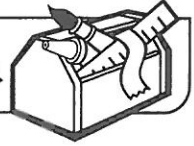
You might have found the area of this shaded path in Lesson 9-6.

Now use Pick's Formula to find the area.

1 cm²

1. The area of the path is _____ cm².

2. Do you think Pick's Formula is a good way to find this area? _____

    Explain. _____

    _____

    _____

    _____

    _____