Name Date

Enrichment and Extension

9.2

Scaling Down the Pyramids

Imagine that you are planning to make scale models of the square pyramids described below. (See Activity 1 in Section 9.2 in your textbook for pictures   
of the pyramids.) You will be making them out of plywood. Plywood is sold   
in sheets that are 4 feet by 8 feet.

|  |  |  |
| --- | --- | --- |
| Pyramid | Actual  side length (m) | Actual  slant height (m) |
| Cheops Pyramid in Egypt | 230 | 186 |
| Muttart Conservatory in Edmonton | 26 | 27 |
| Louvre Pyramid in Paris | 35 | 28 |
| Pyramid of Caius Cestius in Rome | 22 | 29 |

1. You have decided that your scale should beWhy should you use this as your scale instead of

2. Find the side length and slant height of the models, and complete the table.

|  |  |  |
| --- | --- | --- |
| Pyramid | Model  side length (cm) | Model  slant height (cm) |
| Cheops Pyramid in Egypt |  |  |
| Muttart Conservatory in Edmonton |  |  |
| Louvre Pyramid in Paris |  |  |
| Pyramid of Caius Cestius in Rome |  |  |

3. What is the least amount of plywood (in square centimeters) you would need to make all the models? How many sheets of plywood is this?

4. When purchasing the plywood, the salesman offers half sheets of plywood that are 4 feet by 4 feet.

a. Using your answer to Exercise 3, can you replace one of the full sheets of plywood with a half sheet of plywood? Explain.

b. Check to see if your answer to part (a) is correct by showing how the models can be cut from the plywood. Explain.