

Worksheet 1-7: Maximum/Minimum Measures of a Rectangle

1. What is the maximum area of a rectangle with perimeter 30 m?

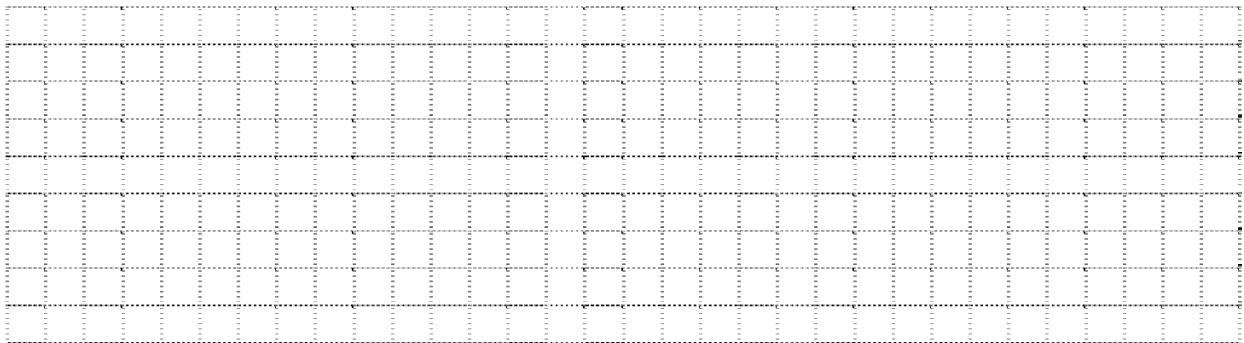
2. Determine the dimensions of a rectangle with perimeter 42 m whose area is as great as possible. What is the maximum area? Justify your answer.

3. In a banquet room, there are small square tables that seat one person on each side. These tables are pushed together to create a rectangular table that seats 20 people.



Three tables seat 8 people.

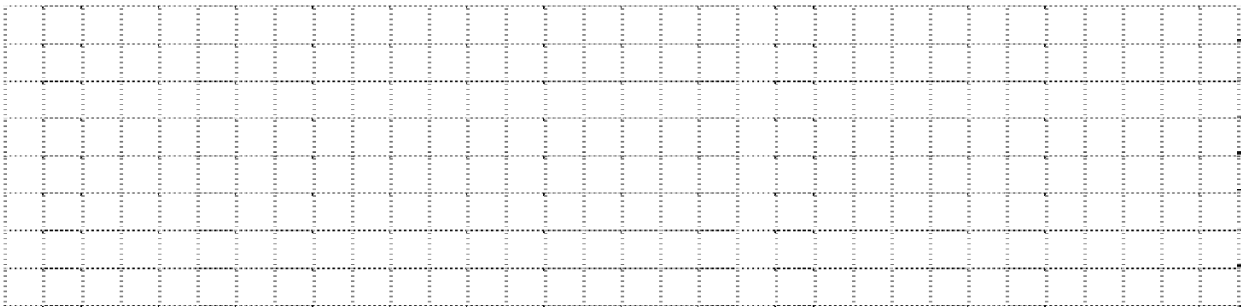
(a) Sketch all possible arrangements of square tables to seat 20 people.



(b) Which arrangement requires the most tables? The fewest tables?

(c) Explain why the arrangement with the fewest tables might not be preferred in this situation.

4. What is the minimum perimeter for a rectangle with area 40 m^2 ?
5. Determine the dimensions of a rectangle with area 1000 m^2 whose perimeter is the least possible. What is the minimum perimeter? Justify your answer.
6. In a banquet room, there are small square tables that seat 1 person on each side. The tables are pushed together to create larger rectangular tables.
- (a) Sketch all possible arrangements of 12 square tables.



- (b) Which arrangement seats the most people? The fewest people? Explain.
- (c) Explain why the minimum perimeter might not be preferred in this situation.

Answers: 1. 56.25 m^2 ; 2. 10.5 m by 10.5 m, 110.25m²; 3. (a) 1 by 9, 2 by 8, 3 by 7, 4 by 6, 5 by 5, (b) most = 25, fewest = 9, (c) the person at one end of the table won't be able to speak to the person at the other end. The square is closest to a circle, which is the best shape for communicating around a table; 4. 25.3 m; 5. 31.62 m by 31.62 m, 126.49 m; 6. (a) 1 by 12, 2 by 6, 3 by 4, (b) most = 26, fewest = 14, (c) Same as 3 (c)