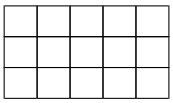
DISCUSSION FOR FIRST TUTORIAL

DATE: SEPTEMBER 19(T1) & 26(T2), 2011, DUE OCTOBER 3(T1) & 17(T2), 2011

From Thinking Mathematically (2nd edition p. 151, revised edition p. 166)

Consider a 3×5 grid as in the picture below. A line drawn from opposite corners (a *diagonal*) in this picture will pass through 7 squares.



More generally, if n and m are positive integers, how many squares does a diagonal in an $n \times m$ rectangle pass through? How many squares does an $n \times m$ rectangle touch (even a corner)?

Begin by experimenting and making a conjecture. A complete solution should allow you to answer this question for very large m and n without having to draw a picture.