2.9 A common measure of transmission for digital data is the baud rate, defined as symbols (bits in our case) per second. As a minimum, transmission is accomplished in packets consisting of a start bit, a byte (8 bits) of information, and a stop bit. Using these facts, answer the following:

(a) \* How many seconds would it take to transmit a sequence of 500 images of size 1024 × 1024 pixels with 256 intensity levels using a 3 M-baud (106 bits/sec) baud modem? (This is a representative medium speed for a DSL (Digital Subscriber Line) residential line.

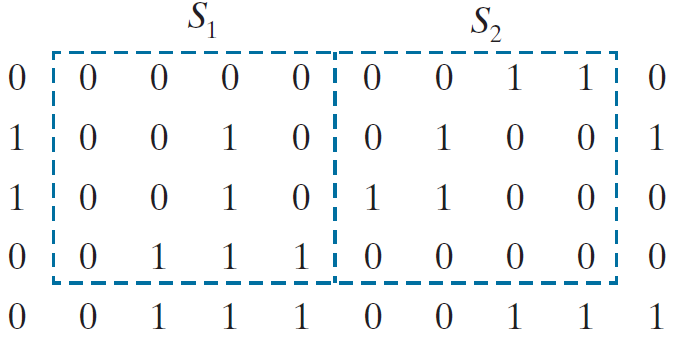
(b) What would the time be using a 30 G-baud (109 bits/sec) modem? (This is a representative medium speed for a commercial line.)

2.14 Consider the two image subsets, S1 and S2 in the following figure. With reference to Section 2.5, and assuming that V = {1}, determine whether these two subsets are:

(a) \* 4-adjacent.

(b) 8-adjacent.

(c) m-adjacent.



2.18 Consider the image segment shown in the figure that follows.

(a) \* As in Section 2.5, let V = {0,1} be the set of intensity values used to define adjacency. Compute the lengths of the shortest 4-, 8-, and m-path between p and q in the following image. If a particular path does not exist between these two points, explain why.

