Date:
Name 1:
Name 2:

Let B(R) = 1,000 and B(S) = 500 and M = 101.
How many blocks are expected to be read to join R and S?

a) Using a block-based nested loop join.

Repeat the exercise for B(R) = 100,000 and B(S) = 10,000.

Because $B(S) < B(R)$ in both cases

$$\text{Cost} = B(S) + \left\lceil \frac{B(R) \cdot B(S)}{M} \right\rceil$$

We save 1 block for output:

$$\Rightarrow \text{Cost} = B(S) + \left\lceil \frac{B(R) \cdot B(S)}{10^2} \right\rceil$$

a) $$\text{Cost} = 5 \cdot 10^2 + \frac{5 \cdot 10^2 \cdot 10^3}{10^2} = 5 \cdot 10^2 + 5 \cdot 10^3$$
$$= 5{,}500 \text{ Block reads}$$

b) $$\text{Cost} = 10^4 + \frac{10^4 \cdot 10^5}{10^2} = 10^4 + 10^7 = 10{,}010{,}000$$
$$\cong 10^7 \text{ block reads}$$