1. Given two tables as follows.

   - **CREATE TABLE** `t1`(`A` **INT NOT NULL**, `B` **INT NOT NULL**)
   - **CREATE TABLE** `t2`(`A` **INT NOT NULL**, `C` **INT NOT NULL**)

   The number of tuples in `t1` is $N_r \geq 1$ and in `t2` is $N_s \geq 1$. What is the minimum / minimum number of tuples in

   - **SELECT** * **FROM** `t1` **CROSS JOIN** `t2`
   - **SELECT** * **FROM** `t1` **INNER JOIN** `t2`
   - **SELECT** * **FROM** `t1` **JOIN** `t2`
   - **SELECT** * **FROM** `t1` **NATURAL JOIN** `t2`
   - **SELECT** * **FROM** `t1` **NATURAL LEFT OUTER JOIN** `t2`;
   - **SELECT** * **FROM** `t1` **NATURAL RIGHT OUTER JOIN** `t2`;

	Maximum	**Minimum**
CROSS JOIN	$N_r \times N_s$	$N_r \times N_s$
INNER JOIN	$N_r \times N_s$	$N_r \times N_s$
JOIN	$N_r \times N_s$	$N_r \times N_s$
NATURAL JOIN	$N_r \times N_s$	0
NATURAL LEFT OUTER JOIN	$N_r \times N_s$	N_r
NATURAL RIGHT OUTER JOIN	$N_r \times N_s$	N_s

2. Given two tables as follows.

   - **CREATE TABLE** `t1`(`A` **INT PRIMARY KEY**, `B` **INT NOT NULL**)
   - **CREATE TABLE** `t2`(`A` **INT PRIMARY KEY**, `C` **INT NOT NULL**)

   The number of tuples in `t1` is $N_r \geq 1$ and in `t2` is $N_s \geq 1$. What is the maximum / minimum number of tuples in

   - **SELECT** * **FROM** `t1` **CROSS JOIN** `t2`
   - **SELECT** * **FROM** `t1` **INNER JOIN** `t2`
   - **SELECT** * **FROM** `t1` **JOIN** `t2`
   - **SELECT** * **FROM** `t1` **NATURAL JOIN** `t2`
   - **SELECT** * **FROM** `t1` **NATURAL LEFT OUTER JOIN** `t2`;
   - **SELECT** * **FROM** `t1` **NATURAL RIGHT OUTER JOIN** `t2`;

	Maximum	**Minimum**
CROSS JOIN	$N_r \times N_s$	$N_r \times N_s$
INNER JOIN	$N_r \times N_s$	$N_r \times N_s$
JOIN	$N_r \times N_s$	$N_r \times N_s$
NATURAL JOIN	$\min(N_r, N_s)$	0
NATURAL LEFT OUTER JOIN	N_r	N_r
NATURAL RIGHT OUTER JOIN	N_s	N_s

3. Given two tables as follows.

   - **CREATE TABLE** `t1`(`A` **INT PRIMARY KEY**, `B` **INT NOT NULL**)
   - **CREATE TABLE** `t2`(`A` **INT NOT NULL**, `C` **INT NOT NULL**)

   The number of tuples in `t1` is $N_r \geq 1$ and in `t2` is $N_s \geq 1$. What is the maximum / minimum number of tuples in

   - **SELECT** * **FROM** `t1` **CROSS JOIN** `t2`
   - **SELECT** * **FROM** `t1` **INNER JOIN** `t2`
   - **SELECT** * **FROM** `t1` **JOIN** `t2`

- **SELECT** * **FROM** `t1` **NATURAL JOIN** `t2`
- **SELECT** * **FROM** `t1` **NATURAL LEFT OUTER JOIN** `t2`;
- **SELECT** * **FROM** `t1` **NATURAL RIGHT OUTER JOIN** `t2`;

	Maximum	**Minimum**
CROSS JOIN	$N_r \times N_s$	$N_r \times N_s$
INNER JOIN	$N_r \times N_s$	$N_r \times N_s$
JOIN	$N_r \times N_s$	$N_r \times N_s$
NATURAL JOIN	$\max(N_r, N_s)$	0
NATURAL LEFT OUTER JOIN	$\max(N_r, N_s)$	N_r
NATURAL RIGHT OUTER JOIN	N_s	N_s