

Important Questions 7

Question 1: Let $A = \{1,2,3,4\}$, and $B = \{1,2,3\}$.

(a) How many relations on A ?

[1] 2^4 . [2] 2^8 . [3] 2^{16} . [4] 4^2 .

(b) How many relations from A to B ?

[1] 2^{12} . [2] 4^3 . [3] 3^4 . [4] 2^7 .

(c) How many reflexive relations on B ?

[1] 2^{16} . [2] 2^{12} . [3] 2^6 . [4] 3^6 .

(d) How many irreflexive relations on A ?

[1] 2^{16} . [2] 2^4 . [3] 2^6 . [4] 2^{12} .

(e) How many symmetric relations on A ?

[1] 2^6 . [2] 2^{10} . [3] 2^8 . [4] 2^{12} .

(g) How many "reflexive and symmetric" relations on B ?

[1] 2^3 . [2] 2^6 . [3] 2^{10} . [4] 2^8 .

(h) How many " reflexive and irreflexive " relations on A ?

[1] 2^{13} . [2] 2^7 . [3] 2^{12} . [4] 2^6 .

(l) How many " irreflexive and symmetric " relations on B ?

[1] 2^8 . [2] 2^3 . [3] 2^6 . [4] 2^{10} .

(k) How many functions from A into B ?

[1] 3^4 . [2] 4^3 . [3] 2^{12} . [4] 2^6 .

(m) How many one to one (injections) functions from A to B ?

[1] 24. [2] 0. [3] 4^3 . [4] 3^4 .

(n) How many one to one (injections) from B into A ?

- [1] 0. [2] 4^3 . [3] 24. [4] 3^4 .

(j) How many one to one functions from A onto A (bijections) ?

- [1] 4^4 . [2] 24. [3] 4×4 . [4] 2^4 .

(o) How many bijections from B to B ?

- [1] 3^3 . [2] 9. [3] 2^3 . [4] 6.

(p) How many onto (surjections) functions from B to A ?

- [1] 0. [2] 6. [3] 12. [4] 24.

(r) How many functions from B into A ?

- [1] 3^4 . [2] 4^3 . [3] 24. [4] 0.

(x) How many injections from B to A ?

- [1] 12. [2] 0. [3] 6. [4] 4^3 .

(y) How many bijections (one to one onto) functions from B to A ?

- [1] 12. [2] 4^3 . [3] 24. [4] 0.