

Maths for Regular expressions worksheet - answers

1. What is a Set?

An unordered collection of unique values

2. What is the cardinality of the set: $S = \{23, 19, 18, 15\}$?

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3. Define a set Q consisting all the odd numbers between 1 and 9.

$Q = \{1, 3, 5, 7, 9\}$

4. What is the cartesian product of $S1 = \{a, b\}$ and $S2 = \{c, d\}$?

$\{(a, c), (a, d), (b, c), (b, d)\}$

5. What set would the following set produce: $A = \{1^n 0^n 1^n \mid n > 1 \wedge n < 3\}$?

$A = \{110011\}$

6. What set would the following list comprehension produce: $A = \{4n \mid n \in \mathbb{N} \wedge n < 3\}$?

$A = \{0, 4, 8\}$

7. If $X = \{2, 4, 6, 8\}$ and $Y = \{4, 8, 16, 32\}$ what is $X \cup Y$

$\{2, 4, 6, 8, 16, 32\}$

8. if $A = \{0, 2\}$ and $B = \{1, 2\}$ find C where $C = A \times B$

$\{(0, 1), (0, 2), (2, 1), (2, 2)\}$

9. What is the intersection of $X = \{2, 4, 6, 8, 10\}$ and $Y = \{3, 7, 8, 1, 6\}$?

$\{6, 8\}$

10. What is the difference of $X = \{2, 4, 6, 8, 10\}$ and $Y = \{3, 7, 8, 1, 6\}$?

$\{2, 4, 10, 3, 7, 1\}$