

Discrete Mathematics
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Exam 2
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1. Write only the answers.

- a) Convert 0.625₁₀ to binary.
- b) True/False? $(A \oplus B) - (A \cap B) = \varnothing$
- c) What is the minimum number of people so that at least 4 have birthdays in the same month?
- d) If a set has 8 elements, how many subsets does it have that contain 2 elements?
- e) Write the formula for $(A + B)^4$

2. $A = \{1, 2, 6, 10, 20, 30\}$ and $R = \{(a, b) \mid a \text{ divides } b\}$.

Prove that R is a partial order relation and then draw its Hasse diagram.

3. How many positive integers ≤ 200 are multiples of 2, 8, or 10 ?

4. $A = \{0, 2, 6, 8, 9, 10\}$ and $R = \{(a, b) \mid 3 \text{ divides } a - b\}$.

Prove that R is an equivalence relation and then find its equivalence classes.