

SAMPLE RELATIONS QUESTIONS

EXAM INSTRUCTIONS:

Show neat work for full credit.

Put your name on all answer sheets.

If you leave out a question (by writing "omit"), I'll give you 1/6 of the value.

(1) For **each** of the following Relations:

- State whether or not it is an equivalence relation.
- $\left\{ \begin{array}{l} \text{If it is an equivalence relation, give the equivalence classes.} \\ \text{If it isn't, state why not.} \end{array} \right.$

(a) $S = \{ 2, 3, 4, 5 \}$ $R = \{ (2,3), (3,2), (4,5), (5,4) \}$

(b) $S = \mathbb{Z}$. $R = \mathbb{Z} \times \mathbb{Z}$.

(2) For **each** of the following Relations:

- Let The domain and codomain be $\{-3,-2,-1,0,1,2,3\}$
- State whether or not it is a function.
- $\left\{ \begin{array}{l} \text{If it is a function, state whether it is even, odd} \\ \text{If it isn't, state why not.} \end{array} \right.$

(a) (6 pts.) $f = \{(-3,1), (-2,2), (-1,3), (0,0), (3,1), (2,2), (1,3)\}$

(b) (6 pts.) $f(x) = \sqrt{x}$. (squareroot)