

Name \_\_\_\_\_ Transitions, Quiz 7

1) Define a relation  $\equiv$  on  $\mathbb{Z}$  via  $x \equiv y$  if and only if  $6|x - y$ . Denote the equivalence class of an element  $x$  by  $\bar{x}$ . Lastly, define the operation multiplication on these equivalence classes via the equation below.

$$\bar{x} \cdot \bar{y} := \overline{x \cdot y}$$

Show that this multiplication operation is well defined.

2) Using the relation from the previous problem, find  $\bar{4} \cdot \bar{5}$  and reduce your answer.