Name:

Problem 1: *Does the Diophantine equation*

$$4x + 6y = 9$$

have a solution?

(a) Yes, it has at least one solution (and possibly many).

(b) No, it has no solution.

(c) There is not enough information to answer this question.

*For full credit, please justify your answer **with one sentence**.*

Solution: Using Theorem 1 of Section 3, this Diophantine equation has no solution because $(4, 6) = 2$ and 2 does not divide 9.