

Countability Problems

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Name _____

Exercises

1. Prove: The set of even natural numbers, $\mathbf{E} = \{2, 4, 6, 8, \dots, 2n, \dots\}$, is countable.
2. The set of integers that are multiples of 5, $5\mathbf{Z} = \{0, \pm 5, \pm 10, \pm 15, \dots, \pm 5z, \dots\}$, is countable.
3. Prove: The set of irrational numbers, \mathbf{Q}^c , is uncountable.