

For each of the following, determine whether the function  $f$  is one-to-one. For those that are not, provide a short justification. When not specified, the domain and codomain are  $\mathbb{R}$ .

1.  $f(x) = 2x + 5$

2.  $f(x) = 2x^2$

3.  $f(x) = x^2$  with domain  $[0, \infty)$

4.  $f(x) = \lfloor x \rfloor$

5.  $f(x) = \lfloor x \rfloor$  with domain  $\{0, 1, 2, \dots\}$