# Domain and Range

Version 2

**Name**: _____ **Date**: _____ **Score**: _____

Direction: Find the domain and range of each function. Show all your work in the space provided.

1) $y = -x^2 + 1$

2) $y = x^2 - x - 2$

3) $y = -\sqrt{x+2}$

4) $y = \dfrac{x}{x-3}$

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1) $y = -x^2 + 1$

| | *Set Notation* | *Interval Notation* |
|---|---|---|
| *Domain* | $\{x \in \mathbb{R}\}$ | $(-\infty, \infty)$ |
| *Range* | $\{y \in \mathbb{R} \mid y \le 1\}$ | $(-\infty, 1]$ |

2) $y = x^2 - x - 2$

| | *Set Notation* | *Interval Notation* |
|---|---|---|
| *Domain* | $\{x \in \mathbb{R}\}$ | $(-\infty, \infty)$ |
| *Range* | $\left\{y \in \mathbb{R} \mid y \ge \frac{-9}{4}\right\}$ | $\left[\frac{-9}{4}, \infty\right)$ |

3) $y = -\sqrt{x+2}$

| | *Set Notation* | *Interval Notation* |
|---|---|---|
| *Domain* | $\{x \in \mathbb{R} \mid x \ge -2\}$ | $[-2, \infty)$ |
| *Range* | $\{y \in \mathbb{R} \mid y \ge -1\}$ | $[-1, \infty)$ |

4) $y = \frac{x}{x-3}$

| | *Set Notation* | *Interval Notation* |
|---|---|---|
| *Domain* | $\{x \in \mathbb{R} \mid x \ne 3\}$ | $(-\infty, 3) \cup (3, \infty)$ |
| *Range* | $\{y \in \mathbb{R} \mid y \ne 1\}$ | $(-\infty, 1) \cup (1, \infty)$ |