

4.1 Domain/Range

1. $f(x) = x - 5$
 $D: (-\infty, \infty)$

2. $f(x) = 5x^4 - 8$
 $D: (-\infty, \infty)$

3. $f(x) = \frac{3x-5}{x}$

$x \neq 0$

$D: (-\infty, 0) \cup (0, \infty)$

4. $f(x) = \frac{2x+3}{x-5}$

$x-5 \neq 0$

$x \neq 5$

$D: (-\infty, 5) \cup (5, \infty)$

5. $f(x) = \frac{5x+7}{x^2-9}$

$x^2-9 \neq 0$

$x^2 \neq 9$

$x \neq \pm 3$

$D: (-\infty, -3) \cup (-3, 3) \cup (3, \infty)$

6. $f(x) = \frac{2x}{x^2-3x-10}$

$x^2-3x-10 \neq 0$

$(x-5)(x+2) \neq 0$

$x-5 \neq 0$ $x+2 \neq 0$

$x \neq 5$ $x \neq -2$

$D: (-\infty, -2) \cup (-2, 5) \cup (5, \infty)$

7. $f(x) = \frac{x^2-16}{x^2-8x-20}$

$x^2-8x-20 \neq 0$

$(x-10)(x+2) \neq 0$

$x-10 \neq 0$ $x+2 \neq 0$

$x \neq 10$ $x \neq -2$

$D: (-\infty, -2) \cup (-2, 10) \cup (10, \infty)$

8. $f(x) = \frac{-2x^3}{3x^2+13x-10}$

$3x^2+13x-10 \neq 0$

$(3x-2)(x+5) \neq 0$

$3x-2 \neq 0$ $x+5 \neq 0$

$x \neq \frac{2}{3}$ $x \neq -5$

$D: (-\infty, -5) \cup (-5, \frac{2}{3}) \cup (\frac{2}{3}, \infty)$

9. $f(x) = \sqrt{5x+2}$

$5x+2 \geq 0$

$5x \geq -2$

$x \geq -\frac{2}{5}$

$D: [-\frac{2}{5}, \infty)$

10. $f(x) = \frac{\sqrt{3-7x}}{5}$

$3-7x \geq 0$

$-7x \geq -3$

$x \leq \frac{3}{7}$

$D: (-\infty, \frac{3}{7}]$

* divide by a
neg. \Rightarrow flip your
inequality!

$$11. f(x) = \frac{\sqrt{5}}{x^2 - 3x}$$

$$x^2 - 3x \neq 0$$

$$x(x-3) \neq 0$$

$$x \neq 0 \quad x - 3 \neq 0$$

$$x \neq 3$$

$$D: (-\infty, 0) \cup (0, 3) \cup (3, \infty)$$

$$12. f(x) = \frac{\sqrt{2x+5}}{x^2 - 16}$$

$$2x + 5 \geq 0$$

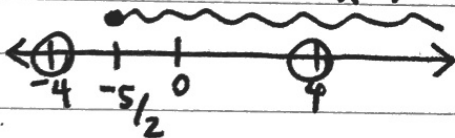
$$2x \geq -5$$

$$x \geq -\frac{5}{2}$$

$$x^2 - 16 \neq 0$$

$$x^2 \neq 16$$

$$x \neq \pm 4$$



$$D: [-\frac{5}{2}, 4) \cup (4, \infty)$$