

2.4 - Relations and Functions and 2.5 - Properties of Functions

Review problems

1. **Solving linear inequalities.** Solve the given inequalities. Write answers in interval notation.
(a) $2x - 5 > 3$ (b) $5 - 4x \leq 2x + 7$
2. **Solving equations.** Solve for y in terms of x :
(a) $2y - 5x = 3$ (b) $y^2 - 4 = x$

Basic knowledge

3. Do the following equations define y as a function of x ?
(a) $7x^2 + 5y = 9$ (b) $y^4 - x = 0$ (c) $x - 4 = 0$ (d) $y = 2$
4. Let $f(x) = \frac{3+x}{x-4}$:
(a) find the function's domain
(b) evaluate $f(3)$, $f(-2)$
(c) find intercepts
(d) find and simplify $f(-x)$, $f(x+5)$, $f(a+h)$
5. Determine algebraically whether the given functions are odd, even, or neither.
(a) $f(x) = 5x - 2$ (b) $g(x) = -x + x^3$ (c) $h(x) = -x^2 - 9$

Intermediate

6. Let $f(x) = \frac{\sqrt{2x-6}}{x-5}$:
(a) find the function's domain
(b) evaluate $f(3)$, $f(-2)$
(c) find intercepts
(d) find and simplify $f(-x)$, $f(x+5)$, $f(a+h)$

Advanced

7. Find the domain of function $g(x) = \sqrt{\frac{3x-8}{9-2x+5}}$
8. For function $f(x) = x^2 - 2x + 3$ find and simplify:
(a) $f(x+h)$ (b) $\frac{f(x+h) - f(x)}{h}$