SECTION 6.1

1. $f(4) = 2$ **3.** $f(-2) = -2$ **5.** $f(-2) = \dfrac{1}{9}$ **7.** $f(3) = \dfrac{1}{35}$ **9.** $f(-1) = \dfrac{3}{4}$ **11.** The domain is $\{x \mid x \neq 3\}$.

13. The domain is $\{x \mid x \neq -4\}$.   **15.** The domain is $\{x \mid x \neq -3\}$.   **17.** The domain is $\left\{ x \mid x \neq \dfrac{2}{3}, 4 \right\}$.

19. The domain is $\{x \mid x \neq -3, 2\}$.   **21.** The domain is $\{x \mid x \in \text{real numbers}\}$.   **23.** $1 - 2x$ **25.** $3x - 1$ **27.** $2x$

29. $-\dfrac{2}{a}$ **31.** The expression is in simplest form.   **33.** $x^2y^2 - 4xy + 5$ **35.** $\dfrac{x^n}{x^n - y^n}$ **37.** $\dfrac{x - 3}{x - 5}$ **39.** $\dfrac{x + 4}{x - 4}$

41. $\dfrac{a - b}{a^2 - ab + b^2}$ **43.** $\dfrac{4x^2 + 2xy + y^2}{2x + y}$ **45.** $\dfrac{(a - 2)(x + 1)}{ax}$ **47.** $\dfrac{x^2 - 3}{x^2 + 1}$ **49.** $\dfrac{2xy + 1}{3xy - 1}$ **51.** $\dfrac{a^n + 4}{a^n + 1}$ **53.** $\dfrac{a^n + b^n}{a^n - b^n}$

55. $\dfrac{a + b}{(x + 1)(x - 1)}$ **57.** $\dfrac{abx}{2}$ **59.** $\dfrac{x}{2}$ **61.** $\dfrac{y(x - 1)}{x^2(x + 1)}$ **63.** $-\dfrac{x + 5}{x - 2}$ **65.** 1 **67.** $\dfrac{x^n + 4}{x^n - 1}$

69. $\dfrac{(x + 1)(x - 1)(x - 4)}{x - 2}$ **71.** $\dfrac{x + y}{3}$ **73.** $\dfrac{4by}{3ax}$ **75.** $\dfrac{4(x - y)^2}{9x^2y}$ **77.** $\dfrac{2x - 3y}{4y^2}$ **79.** $-\dfrac{2x + 5}{2x - 5}$ **81.** $x(x - 3)$

83. -1 **85.** $(x^n + 1)^2$ **87.** $\dfrac{(x + y)(x - y)}{x^3}$ **89.** $\dfrac{x + 3}{x - 3}$ **91a.** $\dfrac{5(x - 4)(x + 4)}{2(x - 2)(x + 2)(x - 3)}$ **b.** $\dfrac{5(3y^2 + 2)}{y^2}$ **93.** OK

95. $\dfrac{5b^2 + 3b}{b^2} = \dfrac{\cancel{b}(5b + 3)}{\cancel{b} \cdot b} = \dfrac{5b + 3}{b}$ **97.** $\dfrac{(x - 1)(x + 4)}{x^2 + 3x + 4}$ is in simplest form.