Answer key

The method: The quotient rule

$(u \div v)' = (u'v - uv') \div v^2$. Leave the denominator squared.

$$f(x) = \frac{4x - 7}{x + 5} \qquad f'(x) = \frac{27}{(x + 5)^2}$$

$$f'(x) = \frac{4(x + 5) - (4x - 7)(1)}{(x + 5)^2} \quad (u/v)' = (u'v - uv') \div v^2$$

$$4(x + 5) - (4x - 7)(1) = 27 \quad \text{the x terms cancel in the numerator}$$

Problems 1 and 2 worked out · Version 0A

$$f(x) = \frac{-5x - 8}{x - 8} \qquad f'(x) = \frac{48}{(x - 8)^2}$$

$$f'(x) = \frac{-5(x - 8) - (-5x - 8)(1)}{(x - 8)^2} \quad (u/v)' = (u'v - uv') \div v^2$$

$$-5(x - 8) - (-5x - 8)(1) = 48 \quad \text{the x terms cancel in the numerator}$$

$$f(x) = \frac{-2x}{x + 5} \qquad f'(x) = \frac{-10}{(x + 5)^2}$$

$$f'(x) = \frac{-2(x + 5) - (-2x)(1)}{(x + 5)^2} \quad (u/v)' = (u'v - uv') \div v^2$$

$$-2(x + 5) - (-2x)(1) = -10 \quad \text{the x terms cancel in the numerator}$$

The quotient rule · Version 0A

1) $\frac{48}{(x - 8)^2}$ 2) $\frac{-10}{(x + 5)^2}$ 3) $\frac{-13}{(x + 8)^2}$ 4) $\frac{-4}{(x - 5)^2}$

5) $\frac{11}{(x + 9)^2}$ 6) $\frac{7}{(x - 7)^2}$ 7) $\frac{19}{(x + 4)^2}$ 8) $\frac{-7}{(x - 9)^2}$

9) $\frac{-3}{(x + 3)^2}$ 10) $\frac{-25}{(x - 5)^2}$ 11) $\frac{52}{(x + 9)^2}$ 12) $\frac{-15}{(x - 3)^2}$

13) $\frac{16}{(x - 8)^2}$ 14) $\frac{15}{(x - 9)^2}$ 15) $\frac{24}{(x + 6)^2}$ 16) $\frac{8}{(x - 3)^2}$

17) $\frac{2}{(x - 1)^2}$ 18) $\frac{24}{(x - 8)^2}$ 19) $\frac{11}{(x - 1)^2}$ 20) $\frac{5}{(x + 1)^2}$

21) $\frac{-40}{(x + 8)^2}$ 22) $\frac{-7}{(x - 5)^2}$ 23) $\frac{-10}{(x - 3)^2}$ 24) $\frac{-19}{(x - 3)^2}$

25) $\frac{10}{(x + 2)^2}$ 26) $\frac{-15}{(x + 9)^2}$ 27) $\frac{-36}{(x + 8)^2}$ 28) $\frac{2}{(x - 6)^2}$

29) $\frac{-21}{(x - 5)^2}$