

$$\frac{1 - \frac{4}{x} - \frac{21}{x^2}}{1 - \frac{2}{x} - \frac{15}{x^2}} = \frac{1 \cdot \frac{x^2}{x^2} - \frac{4}{x} \cdot \frac{x}{x} - \frac{21}{x^2}}{1 \cdot \frac{x^2}{x^2} - \frac{2}{x} \cdot \frac{x}{x} - \frac{15}{x^2}}$$

$$= \frac{\frac{x^2}{x^2} - \frac{4x}{x^2} - \frac{21}{x^2}}{\frac{x^2}{x^2} - \frac{2x}{x^2} - \frac{15}{x^2}}$$

$$= \frac{\frac{x^2 - 4x - 21}{x^2}}{\frac{x^2 - 2x - 15}{x^2}}$$