

Đề bài

Thực hiện phép tính sau:

$$\left| \begin{array}{l} \text{a) } \frac{3}{2x+6} - \frac{x-6}{2x^2+6x}; \\ \text{b) } x^2 + 1 - \frac{x^4-3x^2+2}{x^2-1} \end{array} \right.$$

Lời giải đáp án

$$\begin{aligned} \text{a) } \frac{3}{2x+6} - \frac{x-6}{2x^2+6x} &= \frac{3}{2(x+3)} + \frac{-(x-6)}{2x(x+3)} \\ &= \frac{3x}{2x(x+3)} + \frac{-(x-6)}{2x(x+3)} \\ &= \frac{3x-(x-6)}{2x(x+3)} = \frac{3x-x+6}{2x(x+3)} \\ &= \frac{2x+6}{2x(x+3)} = \frac{2(x+3)}{2x(x+3)} = \frac{1}{x} \end{aligned}$$

$$\begin{aligned} \text{b) } x^2 + 1 - \frac{x^4-3x^2+2}{x^2-1} &= x^2 + 1 + \frac{-(x^4-3x^2+2)}{x^2-1} \\ &= \frac{(x^2+1)(x^2-1)-x^4+3x^2-2}{x^2-1} \\ &= \frac{x^4-1-x^4+3x^2-2}{x^2-1} \\ &= \frac{3x^2-3}{x^2-1} = \frac{3(x^2-1)}{x^2-1} = 3. \end{aligned}$$