

Because $x^2 + 6x - 27 = (x + 9)(x - 3)$, this is the least common denominator.

$$\frac{3x + 1}{x - 3} + \frac{x - 9}{x^2 + 6x - 27} = \frac{(3x + 1)(x + 9)}{(x - 3)(x + 9)} + \frac{x - 9}{(x + 9)(x - 3)}$$

$$= \frac{3x^2 + 28x + 9}{(x + 9)(x - 3)} + \frac{x - 9}{(x + 9)(x - 3)} = \frac{3x^2 + 29x}{x^2 + 6x - 27}$$