

Rational Expressions

Factor the top and bottom expressions. Simplify each expression.

1) $\frac{x^2 + 9x + 18}{x^2 + 12x + 27}$

$$= \frac{(x+3)(x+6)}{(x+3)(x+9)}$$

$$= \frac{x+6}{x+9}$$

2) $\frac{x^2 + 18x + 80}{10x^2 + 80x}$

$$= \frac{(x+8)(x+10)}{10x(x+8)}$$

$$= \frac{x+10}{10x}$$

$$3) \frac{x^2 - 3x - 40}{x^2 - 12x + 32}$$

$$= \frac{(x-8)(x+5)}{(x-4)(x-8)}$$

$$= \frac{x+5}{x-4}$$

$$4) \frac{x^2 - 25}{x^2 - 2x - 15}$$

$$= \frac{(x-5)(x+5)}{(x-5)(x+3)}$$

$$= \frac{x+5}{x+3}$$

$$5) \frac{7n+63}{n^2+19n+90}$$

$$= \frac{7(n+9)}{(n+9)(n+10)}$$

$$= \frac{7}{n+10}$$

$$6) \frac{b^2-7b-8}{b^2-18b+80}$$

$$= \frac{(b-8)(b+1)}{(b-8)(b-10)}$$

$$= \frac{b+1}{b-10}$$