Practice Exercises

Find the quotient of the following rational algebraic expressions.

1. $\dfrac{81xz^3}{36y} \div \dfrac{27x^2z^2}{12xy}$
2. $\dfrac{2a+2b}{a^2+ab} \div \dfrac{4}{a}$
3. $\dfrac{16x^2-9}{6-5x-4x^2} \div \dfrac{16x^2+24x+9}{4x^2+11x+6}$
4. $\dfrac{x^2+2x+1}{x^2+4x+3} \div \dfrac{x^2-1}{x^2+2x+1}$
5. $\dfrac{x-1}{x+1} \div \dfrac{1-x}{x^2+2x+1}$

Problem Set

Find the quotient of the following rational algebraic expressions.

1. $\dfrac{14x^2}{20y^2} \div \dfrac{56x^2}{y}$
2. $\dfrac{4a-4b}{30a^2} \div \dfrac{a-b}{9a}$
3. $\dfrac{x^2-4}{x^2+4x+4} \div \dfrac{x^2-x-2}{x^2+3x+2}$
4. $\dfrac{x^2-2x-3}{x^2-3x} \div \dfrac{x^2-4}{x^2+2x}$
5. $\dfrac{x^2-4}{x^2+2x} \div \dfrac{x^2+x-6}{2x+4}$

Problem Set

1. $\dfrac{14x^2}{20y^2} \cdot \dfrac{y}{56x^2}$

$= \dfrac{1}{80y}$

2. $\dfrac{4a-4b}{30a^2} \cdot \dfrac{9a}{a-b}$

$\dfrac{4(a-b)}{30a^2} \cdot \dfrac{9a}{a-b}$

$= \dfrac{6}{5a}$

3. $\dfrac{x^2-4}{x^2+4x+4} \cdot \dfrac{x^2+3x+2}{x^2-x-2}$

$\dfrac{(x-2)(x+2)}{(x+2)(x+2)} \cdot \dfrac{(x+1)(x+2)}{(x-2)(x+1)}$

$= 1$

4. $\dfrac{x^2-2x-3}{x^2-3x} \cdot \dfrac{x^2+2x}{x^2-4}$

$\dfrac{(x-3)(x+1)}{x(x-3)} \cdot \dfrac{x(x+2)}{(x-2)(x+2)}$

$= \dfrac{x+1}{x-2}$

5. $\dfrac{x^2-4}{x^2+2x} \cdot \dfrac{2x+4}{x^2+x-6}$

$\dfrac{(x-2)(x+2)}{x(x+2)} \cdot \dfrac{2(x+2)}{(x-2)(x+3)}$

$= \dfrac{2(x+2)}{x(x+3)}$