15.2 Division and Reciprocals

❖ DIVISION

Recall: $\frac{2}{3} \div \frac{4}{9}$

The reciprocal of $\frac{3x}{x+5}$:

The reciprocal of $(x+2)$:

Dividing Rational Expressions:

1) Change division to multiplication.
2) Factor each numerator and denominator.
3) Find all common factors to reduce.
4) Multiply straight across.

$$\frac{P}{Q} \div \frac{R}{S} = \frac{P}{Q} \cdot \frac{S}{R} = \frac{PS}{QR}$$

Ex. Divide and, if possible, simplify.

(a) $\frac{4a^2-1}{a^2-4} \div \frac{2a-1}{2-a}$

(b) $\frac{3x+15}{x^7} \div \frac{x+5}{x^2}$

(c) $(a+7) \div \frac{3a^2+14a-49}{a^2+8a+7}$

(d) $\frac{1-x}{1+2x-x^2} \div (1-x)$