Multiply & Divide Rational Expressions

1. Write each rational expression as an equivalent rational expression in lowest terms.

a) $\frac{d+c}{c^2+d^2} \div \frac{c^2-d^2}{d^2-dc}$

b) $\frac{12a^2-7ab+b^2}{9a^2-b^2} \div \frac{16a^2-b^2}{3ab+b^2}$

c) $\left(\frac{x-3}{x^2-4}\right)^{-1} \cdot \left(\frac{x^2-x-6}{x-2}\right)$

d) $\left(\frac{x-2}{x^2+1}\right)^{-3} \div \left(\frac{x^2-4x+4}{x^2-2x-3}\right)$

e) $\frac{6x^2-11x-1}{6x^2-5x-6} \cdot \frac{6-4x}{25-20x+4x^2}$

g) $\frac{3x^3-3a^2x}{x^2-2ax+\ ^2} \cdot \frac{a-x}{a^3x+a^2x^2}$

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1. Write each rational expression as an equivalent rational expression in lowest terms.

a) $\frac{d+c}{c^2+d^2} \div \frac{c^2-d^2}{d^2-dc}$

$-\frac{d}{c^2+d^2}$

b) $\frac{12a^2-7ab+b^2}{9a^2-b^2} \div \frac{16a^2-b^2}{3ab+b^2}$

$\frac{b}{4a+b}$

c) $\left(\frac{x-3}{x^2-4}\right)^{-1} \cdot \left(\frac{x^2-x-6}{x-2}\right)$

$(x+2)^2$

d) $\left(\frac{x-2}{x^2+1}\right)^{-3} \div \left(\frac{x^2-4x+4}{x^2-2x-3}\right)$

$\frac{(x-3)(x+1)(x^2+1)^3}{(x-2)^5}$

e) $\frac{6x^2-11x-10}{6x^2-5x-6} \cdot \frac{6-4x}{25-20x+4x^2}$

$-\frac{2}{2x-5}$, or $\frac{2}{5-2x}$

g) $\frac{3x^3-3a^2x}{x^2-2ax+a^2} \cdot \frac{a-x}{a^3x+a^2x^2}$

$-\frac{3}{a^2}$