Day 1 Notes KEY

Tuesday, January 27, 2015 8:26 AM

Simplify the expression:

① $\frac{a-1}{a^2-1} = \frac{(a-1)}{(a+1)(a-1)} = \boxed{\frac{1}{a+1}}$

② $\frac{x^3y^4 - x^2y}{xy^2 + x^3y} = \frac{x^2y(xy^3-1)}{xy(y+x^2)} = \frac{x(xy^3-1)}{y+x^2} = \boxed{\frac{x^2y^3-x}{y+x^2}}$

Find the value of "?" so that the fractions are equal.

③ $\frac{a-4}{a+5} = \frac{a^2-a-12}{?}$

$\frac{a-4}{a+5} = \frac{(a-4)(a+3)}{?}$ ($a+3$)

$(a+5)(a+3)$

$\boxed{a^2+8a+15}$

④ $\frac{?}{d^2-9} = \frac{d^2+d-6}{d-3}$

$\frac{?}{(d+3)(d-3)} = \frac{(d+3)(d-2)}{(d-3)}$ ($d+3$)

$(d+3)(d+3)(d-2)$

$(d^2+6d+9)(d-2)$

$d^3-2d^2+6d^2-12d+9d-18$

$\boxed{d^3+4d^2-3d-18}$