

Exercise 2015-10 EB-00009(4) – Algebraic fractions

(1) Simplify: (No denominator is zero!)

$$(a) \quad \frac{2}{(k-1)^2} - \frac{4}{k^2-1} - \frac{5}{(1-k)^2} + \frac{3}{1+k}$$

$$(b) \quad \frac{ab+2a}{ab-2a} \div \left(\frac{b^2+2b}{b+3} \times \frac{b^2}{ab^2-3ab+2a} \right)$$

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

$$(d) \quad \frac{m}{m-2} + \frac{m^2-4}{m} \times \frac{m^2+2m}{m^2+4m+4} - \frac{5m}{m-1} \div \frac{10m^2}{m^2-1}$$

(2) If $x + \frac{1}{x} = 5$, calculate without using a calculator, the value of:

[Hint: Square the given and use factorisation!]

$$(a) \quad x^2 + \frac{1}{x^2}$$

$$(b) \quad x^3 + \frac{1}{x^3}$$