

Exercise 2015-10 EC-00004(4)

(1) Simplify, without using a calculator: (Write your answer as a positive exponent!)

(a) $\left(\frac{125x^{-3}}{343y^{-3}}\right)^{\frac{-2}{3}}$

(b) $\frac{4 \cdot 8^{m+1} + 2^m \cdot 4^{m+1}}{32^m \cdot 4^{1-2m}}$

(c) $\frac{25^{\frac{1}{2}} \times 32^{\frac{-1}{5}} + 27^{\frac{1}{3}} \div 8^{\frac{1}{3}}}{18^{\frac{0}{3}} \times 0,5^{-2}}$

(2) Solve for x:

(a) $\sqrt[3]{8x^9} = 0,5^{-3}$

(b) $(2^{x+1} - 3)(2^{x+1} + 3) = 4^x - 6$

(3) Prove that: $\frac{m^{-2} - n^{-2}}{m^{-2}n - mn^{-2}} = \frac{m+n}{n^2 + mn + m^2}$