POTENSER MED HELTALS EXPONENTER (s.124)

4201

a) $5^3 = 5 \cdot 5 \cdot 5 = 125$

c) $9^0 = 1$

4203

a) $3 \cdot 5^2 = 3 \cdot 5 \cdot 5 = 75$

b) $4^2 - 2^4 = 4 \cdot 4 - 2 \cdot 2 \cdot 2 \cdot 2 = 16 - 16 = 0$

4204

a) $5^3 \cdot 5^9 = 5^{3+9} = 5^{12}$

b) $(2^3)^{11} = 2^{3 \cdot 11} = 2^{33}$

c) $3 \cdot 3^{-2} = 3^1 \cdot 3^{-2} = 3^{1+(-2)} = 3^{-1} = \frac{1}{3^1} = \frac{1}{3}$

4205

b) $\frac{x^2}{x^{-5}} = x^{2-(-5)} = x^{2+5} = x^7$

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

4206

a) $\frac{x^5 \cdot x^7}{x^2 \cdot x^3} = \frac{x^{5+7}}{x^{2+3}} = \frac{x^{12}}{x^5} = x^{12-5} = x^7$

4209

a) $2^{x+1} = 2^3 \Rightarrow 2^x \cdot 2^1 = 2^3 \Rightarrow 2^x = \frac{2^3}{2^1} \Rightarrow 2^x = 2^{3-1} \Rightarrow 2^x = 2^2 \Rightarrow x = 2$

b) $3^{2x-3} = 3^{x-1} \Rightarrow 3^{2x} \cdot 3^{-3} = 3^x \cdot 3^{-1} \Rightarrow \frac{3^{2x} \cdot 3^{-3}}{3^{-3}} = \frac{3^x \cdot 3^{-1}}{3^{-3}} \Rightarrow 3^{2x} = \frac{3^x \cdot 3^{-1}}{3^{-3}} \Rightarrow$
$3^{2x} = 3^x \cdot 3^{-1-(-3)} \Rightarrow 3^{2x} = 3^x \cdot 3^2 \Rightarrow \frac{3^{2x}}{3^x} = \frac{3^x \cdot 3^2}{3^x} \Rightarrow 3^{2x-x} = 3^2 \Rightarrow$
$3^x = 3^2 \Rightarrow x = 2$

4210

a) $5^x(5 + 5^x) = 5^{x+1} + 5^{x+x} = 5^{x+1} + 5^{2x}$

b) $(2^x + 2)^2 =$ *{Enligt kvadreringsreglen blir det}* $= 2^x \cdot 2^x + 2^x \cdot 2 \cdot 2 + 2 \cdot 2 =$
$= 2^{x+x} + 4 \cdot 2^x + 4$