

POTENSSI JA LASKUSÄÄNNÖT

Laskusäännöt kirjassa s.62.

ESIM1.a) $2^{-2} = \frac{1}{2^2} = \frac{1}{4}$

b) $(-3)^{-3} = \frac{1}{(-3)^3} = \frac{1}{(-3) \cdot (-3) \cdot (-3)} = \frac{1}{-27} = -\frac{1}{27}$

c) $7^0 + 4^{-2} + 2^{-3}$
 $= 1 + \frac{1}{4^2} + \frac{1}{2^3}$
 $= \overset{16}{1} + \frac{1}{16} + \overset{2}{\frac{1}{8}}$
 $= \frac{16}{16} + \frac{1}{16} + \frac{2}{16}$
 $= \frac{19}{16}$

ESIM2.a) $\left(\frac{3}{10}\right)^2 = \frac{3^2}{10^2} = \frac{9}{100}$

b) $\frac{(-4a^3)^2}{-2a} = \frac{+4^2 \cdot (a^3)^2}{-2a} = \frac{16a^6}{-2a} = -8a^5$

c) $\frac{3^{6n} \cdot 3^{2n+1}}{(-9)^{2n}} = \frac{3^{6n+2n+1}}{((-9)^2)^n} = \frac{3^{6n+2n+1}}{(81)^n}$

$$\frac{(-9)^{2n}}{((-9)^2)^n} = \frac{(81)^n}{(3^4)^n}$$

$$= \frac{3^{6n+2n+1}}{(3^4)^n} = \frac{3^{8n+1}}{3^{4n}}$$

$$= 3^{8n+1-4n} = \underline{\underline{3^{4n+1}}}$$

Kotitehtävät

5.15, 5.23, 6.14 ja 6.22