1.15 Neliöjuurilausekkeita sievennetään samalla tavalla kuin polynomeja. Sievennä lausekkeet.

CAS

a) $5\sqrt{3}-4\sqrt{2}-2\sqrt{3}+\sqrt{2}$

b) $\left(3\sqrt{5}+\sqrt{2}\right)-\left(\sqrt{5}-\sqrt{2}\right)$

c) $\left(2\sqrt{3}+\sqrt{2}-1\right)+\left(\sqrt{5}-\sqrt{2}+1\right)$

a) $(5-2)\sqrt{3}+(-4+1)\sqrt{2}=3\sqrt{3}-3\sqrt{2}$

c) $2\sqrt{3}+\sqrt{2}-1+\sqrt{5}-\sqrt{2}+1=2\sqrt{3}+\sqrt{5}$

1.19 Ratkaise yhtälö.

CAS

a) $x-\frac{2x-5}{3}=\frac{2-x}{2}$

b) $\frac{3x-4}{2}-\frac{2x+7}{4}=1+\frac{x}{3}$

$\frac{18x-24}{12}-\frac{6x+21}{12}=\frac{12}{12}+\frac{4x}{12} \quad \| \cdot 12$

$18x-24-(6x+21)=12+4x$

$18x-24-6x-21=12+4x$

$18x-6x-4x=12+24+21$

$8x=57 \quad \| : 8$

$x=\frac{57}{8}$

Polynomien kertolasku

Esim. Sievennä

a) $2x \cdot 3x^2 = 2 \cdot 3 \cdot x \cdot x \cdot x = \underline{\underline{6x^3}}$

TAI $2 \cdot 3 \cdot x^1 \cdot x^2 = 6x^{1+2} = 6x^3$

b) $-3x(x^2 - 4x) = (-3x) \cdot x^2 + (-3x) \cdot (-4x) = \underline{\underline{-3x^3 + 12x^2}}$

c) $(-4x+2)(3x^2-5x) = (-4x)(3x^2) + (-4x)(-5x) + 2 \cdot 3x^2 + 2 \cdot (-5x)$

$= -12x^3 + 20x^2 + 6x^2 - 10x$

$= \underline{\underline{-12x^3 + 26x^2 - 10x}}$

2.9 Olkoon $P(x)=3x^2-5x$ ja $Q(x)=2x^2-4x+2$. Sievennä CAS-laskimella.

E4

a) $P(x)Q(x)$

b) $2xP(x)-3xQ(x)$