

1.15 Neliöjuurilausekkeita sievennetään samalla tavalla kuin polynomeja. Sievennä lausekkeet.

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

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

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

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

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

1.19 Ratkaise yhtälö.

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

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

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

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

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

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

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

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

Polynomien kertolasku

Esim. Sievenmä

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

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

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

$$c) (-4x + 2)(3x^2 - 5x) = (-4x)(3x^2) + (-4x)(-5x) + 2 \cdot 3x^2 + 2 \cdot (-5x)$$
$$= -12x^3 + \underline{\underline{20x^2}} + \underline{\underline{6x^2}} - 10x$$
$$= \underline{\underline{-12x^3 + 26x^2 - 10x}}$$

2.9



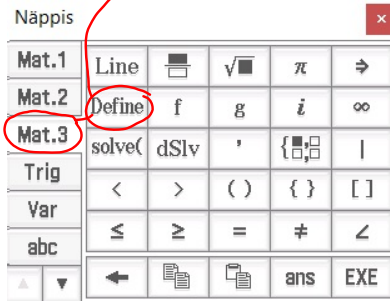
E4

Olkoon $P(x) = 3x^2 - 5x$ ja

$Q(x) = 2x^2 - 4x + 2$. Sievennä CAS-laskimella.

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

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



Define $P(x) = 3x^2 - 5x$

done

Define $Q(x) = 2x^2 - 4x + 2$

done

$P(x)Q(x)$

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

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

$$6 \cdot x^4 - 22 \cdot x^3 + 26 \cdot x^2 - 10 \cdot x$$

