

4.18 Ratkaise yhtälöpari



$$\begin{cases} -\frac{5x}{3} + \frac{2y}{5} = \frac{7}{15} \\ \frac{2x}{7} + \frac{3y}{4} = \frac{25}{14} \end{cases}$$

$$\begin{cases} -\frac{5x}{15} + \frac{6y}{15} = \frac{7}{15} \quad || \cdot 15 \\ \frac{8x}{28} + \frac{21y}{28} = \frac{50}{28} \quad || \cdot 28 \end{cases}$$

$$\begin{cases} -5x + 6y = 7 \quad || \cdot 8 \\ 8x + 21y = 50 \quad || \cdot 5 \end{cases}$$

$$\begin{cases} -5x + 6y = 7 \quad || \cdot 8 \\ 8x + 21y = 50 \quad || \cdot 5 \end{cases} \Rightarrow -5x + 6 \cdot 2 = 7$$

$$\begin{cases} -5x + 6y = 7 \quad || \cdot 8 \\ 8x + 21y = 50 \quad || \cdot 5 \end{cases} \Rightarrow -5x + 12 = 7$$

$$\begin{cases} -5x + 6y = 7 \quad || \cdot 8 \\ 8x + 21y = 50 \quad || \cdot 5 \end{cases} \Rightarrow -5x = -5 \quad || : (-5)$$

$$\begin{cases} -5x + 6y = 7 \quad || \cdot 8 \\ 8x + 21y = 50 \quad || \cdot 5 \end{cases} \Rightarrow x = 1$$

$$\begin{aligned} & \begin{cases} -40x + 48y = 56 \\ + \quad 40x + 105y = 250 \end{cases} \\ & \hline & 153y = 306 \quad || : 153 \\ & y = 2 \text{ ja } x \end{aligned}$$

$$153y = 306 \quad || : 153$$

$$y = 2 \text{ ja } x$$

$$\underline{\underline{V: x=1 \text{ ja } y=2}}$$

Potenssi

Esim. laskke a) $2^3 = 2 \cdot 2 \cdot 2 = \underline{\underline{8}}$ b) $(-3)^2 = (-3) \cdot (-3) = \underline{\underline{9}}$ c) $-3^2 = -\underline{\underline{9}}$

d) $(-2)^4 = 16$ e) $(-2)^5 = -32$ f) $\frac{2}{3} + 4 \cdot (-3)^3 = \frac{2}{3} + 4 \cdot (-27)$

Työnnön potenssi

$$10^1 = 10$$

$$10^2 = 10 \cdot 10 = 100$$

$$\vdots$$
$$10^6 = 1\,000\,000$$

Esim. Muuta 10-potenssi
muotoon

$$a) \underbrace{365\,000}_{3,65 \cdot 100\,000} \text{ m} = \underline{\underline{3,65 \cdot 10^5 \text{ m}}}$$

$$b) \underbrace{128\,000\,000}_{1,28 \cdot 10^8} \text{ W} = \underline{\underline{1,28 \cdot 10^8 \text{ W}}}$$

$$= \frac{2}{3} - \frac{324}{3} = -\frac{322}{3}$$

$$12^{22} \approx 5,52 \cdot 10^{23}$$

Rad	Deg
12^{22}	
$= 5,52061438912436417593\text{e}+23$	

$$\cdot 10^{23}$$

5.13 Laske lausekkeen arvo laskimella ja valitse vaihtoehdoista 1–6 oikea likiarvo.

a) 15^{18} b) $(-23,6)^{12}$

c) $\frac{5,8 \cdot 10^{14}}{2700}$ d) $\frac{8,9 \cdot 10^{20}}{1,5 \cdot 10^{11}}$

Rad Deg

$$(8,9 \times 10^{20}) \div (1,5 \times 10^{11})$$

= 5933333333,3333333333

$\approx 5,93 \cdot 10^9$

HUOM! SULKEET

CAS - GeoGebra

= $\approx$ ✓ 15 3.5 (())

1 $\frac{8.9 \cdot 10^{20}}{1.5 \cdot 10^{11}}$

$\approx$ 5933333333.33

2 \$1

$\frac{5933333333333}{1000}$

Siisletään:
 $(8,9 \cdot 10^{20}) / (1,5 \cdot 10^{11})$
Numeronäppäimiä
kannattaa käyttää