

# Eksponttiyhtälö $a^x = b$

Esim. Ratkaise yhtälö.

a)  $2^x = 32$

$$2^x = 2^5$$

$$x = 5$$

$$\begin{aligned} 32 &= 2 \cdot 16 \\ &= 2 \cdot 4 \cdot 4 \\ &= 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \\ &= 2^5 \end{aligned}$$

c)  $2^x = (2^3)^5$

$$2^x = 2^{3 \cdot 5}$$

$$2^x = 2^{15}$$

$$x = 15$$

b)  $2^x = 32 \cdot 16$

$$2^x = 2^5 \cdot 2^4$$

$$2^x = 2^{5+4}$$

$$2^x = 2^9$$

$$x = 9$$

d)  $8^x = 4^6$

$$(2^3)^x = (2^2)^6$$

$$2^{3x} = 2^{12}$$

$$3x = 12 \quad | :3$$

$$x = 4$$