Oldd meg a valós számok halmazán a következő egyenleteket!

1. **a,** $2^x = 16$ **b,** $3^{2x} = 81$ **c,** $5^{3x} = 125$

d, $6^{3x} = 216$ **e,** $2^{8x} = 256$ **f,** $4^{3x} = 256$

g, $9^x = 729$ **h,** $3^{2x} = 81$ **i,** $7^{2x} = 2401$

j, $11^x = 1331$ **k,** $8^{3x} = 4096$ **l,** $10^{4x} = 10000$

4. **a,** $8 \cdot 2^{3\cdot(2-5x)} = 16$ **b,** $9 \cdot 5^{3\cdot(2x-1)} = 225$

c, $6 \cdot 7^{2\cdot(2x+3)} = 294$ **d,** $2 \cdot 3^{6\cdot(x-1)} = 486$

e, $7 \cdot 2^{3\cdot(1+x)} = 896$ **f,** $5 \cdot 3^{7\cdot(3-x)} = 405$

g, $4 \cdot 7^{2\cdot(2x+3)} = 1372$ **h,** $3 \cdot 5^{4\cdot(13-x)} = 375$

i, $6 \cdot 2^{2\cdot(2-4x)} = 768$ **j,** $7 \cdot 5^{3\cdot(5x-2)} = 875$

k, $4 \cdot 7^{4\cdot(2x+5)} = 196$ **l,** $5 \cdot 3^{3\cdot(2x-1)} = 405$

m, $5 \cdot 2^{2\cdot(4+2x)} = 1280$ **n,** $8 \cdot 3^{5\cdot(3-4x)} = 216$

o, $9 \cdot 7^{5\cdot(x+4)} = 441$ **p,** $7 \cdot 5^{3\cdot(3-x)} = 875$

5. **a,** $\frac{3\cdot 2^{3(3x-1)}}{4}=12$ **b,** $\frac{7\cdot 5^{2(5x-3)}}{25}=7$ **c,** $\frac{5\cdot 3^{4(4x-5)}}{9}=15$

d, $\frac{2\cdot 3^{5(2x-1)}}{6}=1$ **e,** $\frac{8\cdot 7^{2(2x+1)}}{28}=2$ **f,** $\frac{6\cdot 7^{3(5-2x)}}{14}=21$

g, $\frac{2\cdot 3^{3(3-5x)}}{6}=1$ **h,** $\frac{5\cdot 7^{5(3-2x)}}{7}=35$ **i,** $\frac{4\cdot 5^{3(2x-1)}}{20}=5$

j, $\frac{2\cdot 3^{2(4+3x)}}{3}=18$ **k,** $\frac{7\cdot 2^{4(5x+3)}}{4}=28$ **l,** $\frac{8\cdot 3^{3(5-2x)}}{18}=12$

6. **a,** $\frac{\sqrt[3]{2}}{4}=\frac{8}{32^x}$ **b,** $\frac{\sqrt[5]{3}}{27}=\frac{9}{81^x}$ **c,** $\frac{\sqrt[4]{25}}{125}=\frac{5}{625^x}$

d, $\frac{\sqrt[3]{7}}{49}=\frac{343}{7^x}$ **e,** $\frac{\sqrt[5]{8}}{16}=\frac{32}{4^x}$ **f,** $\frac{\sqrt[5]{8}}{16}=\frac{8}{32^x}$

g, $\frac{\sqrt[4]{9}}{81}=\frac{9}{27^x}$ **h,** $\frac{\sqrt[3]{25}}{625}=\frac{25}{125^x}$ **i,** $\frac{\sqrt[5]{7}}{49}=\frac{7}{343^x}$

j, $\frac{\sqrt[4]{32}}{8}=\frac{16}{64^x}$ **k,** $\frac{\sqrt[4]{32}}{8}=\frac{16}{64^x}$ **l,** $\frac{\sqrt[3]{27}}{9}=\frac{81}{3^x}$

7.

a, $2^{2x+1} - 2 \cdot 2^x - 112 = 0$

b, $2^{2x+1} - 2^x - 28 = 0$

c, $2^{2x+1} - 3 \cdot 2^x - 104 = 0$

d, $2^{2x+1} - 2 \cdot 2^x - 24 = 0$

e, $2^{2x+1} - 4 \cdot 2^x - 96 = 0$

f, $2^{2x+1} - 3 \cdot 2^x - 20 = 0$

g, $2^{2x+1} - 5 \cdot 2^x - 88 = 0$

h, $2^{2x+1} - 4 \cdot 2^x - 16 = 0$

i, $2^{2x+1} - 7 \cdot 2^x - 72 = 0$

j, $2^{2x+1} - 5 \cdot 2^x - 12 = 0$

k, $2^{2x+1} - 9 \cdot 2^x - 56 = 0$

l, $2^{2x+1} - 6 \cdot 2^x - 8 = 0$

m, $2^{2x+1} - 11 \cdot 2^x - 40 = 0$

n, $2^{2x+1} - 7 \cdot 2^x - 4 = 0$

o, $\mathbf{2^{2x+1} - 13 \cdot 2^x - 24 = 0}$

p, $2^{2x+1} - 10 \cdot 2^x - 48 = 0$

q, $2^{2x+2} - 2 \cdot 2^x - 56 = 0$

r, $2^{2x+2} - 9 \cdot 2^x - 28 = 0$

s, $2^{2x+2} - 3 \cdot 2^x - 52 = 0$

t, $2^{2x+2} - 11 \cdot 2^x - 20 = 0$

x, $2^{2x+2} - 5 \cdot 2^x - 44 = 0$

y, $2^{2x+2} - 13 \cdot 2^x - 12 = 0$

v, $2^{2x+2} - 7 \cdot 2^x - 36 = 0$

z, $2^{2x+2} - 15 \cdot 2^x - 4 = 0$