1

Solve: $3^{x^2} \times 27^{x} \times 21^{x-1} = \dfrac{7^{x} \times 3^{6}}{63}$

2

Solve:

$$(4 \times 2^x)^x \times 100^x \times 2^{14} = \frac{5^{2x}}{2 \times 4^{2x}}$$

3

Solve

$$9^{3/4} \times 5^{x} \times \frac{7}{5} = 3\sqrt{21 \times 35 \times 5^{x+1}}$$

4

Solve

$$5^{x^2} \times 6^x \times 10 = 2^{x+1} \times 3^x \times 25^{x+\frac{3}{2}}$$

POWER EQUATIONS

1

Solve

$$3^{x^2} \times 27^{x} \times 21^{x-1} = \frac{7^{x} \times 3^{6}}{63}$$

2

Solve

$$(4 \times 2^x)^x \times 100^x \times 2^{14} = \frac{5^{2x}}{2 \times 4^{2x}}$$

3

Solve

$$9^{\frac{3}{4}} \times 5^{x} \times \frac{7}{5} = 3\sqrt{21 \times 35 \times 5^{x+1}}$$

4

Solve

$$5^{x^2} \times 6^x \times 10 = 2^{x+1} \times 3^x \times 25^{x+\frac{3}{2}}$$

1

Solve:

$$3^{x^2} \times 27^{x} \times 21^{x-1} = \frac{7^{x} \times 3^{6}}{63}$$

$$3^{x^2} \times (3^3)^{x} \times 7^{x-1} \times 3^{x-1} = \frac{7^{x} \times 3^{6}}{7 \times 3^2}$$

$$3^{x^2} \times 3^{3x} \times 7^{x-1} \times 3^{x-1} = 7^{x-1} \times 3^{4}$$

$$\frac{3^{x^2} \times 3^{3x} \times 3^{x-1}}{3^4} = 1$$

$$3^{x^2+3x+x-1-4} = 3^0$$

$$x^2 + 4x - 5 = 0$$

$$(x+5)(x-1) = 0$$

$$x = -5 \quad x = 1$$

2

Solve:

$$(4\times 2^x)^x \times 100^x \times 2^{14} = \frac{5^{2x}}{2\times 4^{2x}}$$

$$(2^2\times 2^x)^x \times (2^2\times 5^2)^x \times 2^{14} = \frac{5^{2x}}{2\times (2^2)^{2x}}$$

$$2^{2x}\times 2^{x^2}\times 2^{2x}\times 5^{2x}\times 2^{14} = \frac{5^{2x}}{2\times 2^{4x}}$$

$$2^{8x}\times 2^{x^2}\times 2^{14}\times 2 = 1$$

$$2^{x^2+8x+15} = 1$$

$$x^2+8x+15 = 0$$

$$(x+3)(x+5) = 0$$

$$x = -3 \qquad x = -5$$

3

Solve

$$9^{3/4} \times 5^{x} \times \frac{7}{5} = 3\sqrt{21 \times 35 \times 5^{x+1}}$$

$$\left(9^{3/4} \times 5^{x} \times \frac{7}{5}\right)^{2} = 9 \times 21 \times 35 \times 5^{x+1}$$

$$9^{3/2} \times 5^{2x} \times \frac{7^{2}}{5^{2}} = 9 \times 3 \times 7 \times 5 \times 7 \times 5^{x+1}$$

$$\cancel{3^{3}} \times 5^{2x-2} \times \cancel{7^{2}} = \cancel{3^{2} \times 3 \times 7^{2}} \times 5^{x+2}$$

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

$$2x - 2 = x + 2$$

$$x = 4$$

4

Solve

$$5^{x^2} \times 6^x \times 10 = 2^{x+1} \times 3^x \times 25^{x+\frac{3}{2}}$$

$$5^{x^2} \times 3^x \times 2^x \times 5 \times 2 = 2^{x+1} \times 3^x \times (5^2)^{x+\frac{3}{2}}$$

$$5^{x^2+1} \times 3^x \times 2^{x+1} = 2^{x+1} \times 3^x \times 5^{2x} \times 5^3$$

$$5^{x^2+1-2x-3} = 1$$

$$x^2 - 2x - 2 = 0$$

$$(x-1)^2 - 1 - 3 = 0$$

$$(x-1)^2 = 3$$

$$(x-1) = \pm\sqrt{3}$$

$$x = \pm\sqrt{3} + 1$$