

Hétfő

A csoport

1

$$\text{Reduce}\left[x - 6 + \frac{3}{x - 2} > 0, x\right]$$

$$2 < x < 3 \mid \mid x > 5$$

2

$$\text{Reduce}\left[\left(\frac{1}{49}\right)^{x-3} \frac{1}{\sqrt{7^{x+2}}} = \left(\frac{1}{7}\right)^{2x+1}, x, \text{Reals}\right]$$

$$x = 12$$

3

$$\text{Reduce}[\text{Log}[x + 1] - \text{Log}[8] = \text{Log}[x - 2] - \text{Log}[x - 1], x, \text{Reals}]$$

$$x = 3 \mid \mid x = 5$$

4

$$\text{Reduce}[(\text{Cos}[x] - \text{Sin}[x])^2 + \text{Cos}[2x] = 0, x, \text{Reals}]$$

$$C[1] \in \text{Integers} \&\& \left(x = -\frac{\pi}{2} + 2\pi C[1] \mid \mid x = \frac{\pi}{2} + 2\pi C[1] \mid \mid$$

$$x = -2 \text{ArcTan}[1 + \sqrt{2}] + 2\pi C[1] \mid \mid x = -2 \text{ArcTan}[1 - \sqrt{2}] + 2\pi C[1]\right)$$

5: 1.7 fejezet 1.8 feladat

B csoport

1

$$\text{Reduce}\left[x + 2 + \frac{4}{x - 3} > 0, x\right]$$

$$-1 < x < 2 \mid \mid x > 3$$

2

$$\text{Reduce}\left[\left(\frac{1}{9}\right)^{x-2} \frac{1}{\sqrt{3^{x+1}}} == \left(\frac{1}{3}\right)^{4x+1}, x, \text{Reals}\right]$$

$$x == -3$$

3

$$\text{Reduce}[\text{Log}[x+1] + \text{Log}[x-1] == \text{Log}[8] + \text{Log}[x-2], x, \text{Reals}]$$

$$x == 3 \ || \ x == 5$$

4

$$\text{Reduce}[(\text{Cos}[x] + \text{Sin}[x])^2 - \text{Cos}[2x] == 0, x, \text{Reals}]$$

$$(C[1] \in \text{Integers} \ \&\& \ x == \pi + 2\pi C[1]) \ || \ (C[1] \in \text{Integers} \ \&\&$$

$$(x == 2\pi C[1] \ || \ x == 2 \text{ArcTan}[1 - \sqrt{2}] + 2\pi C[1] \ || \ x == 2 \text{ArcTan}[1 + \sqrt{2}] + 2\pi C[1]))$$

5: 1.7 fejezet 1.9 feladat

Szerda

A csoport

1

$$\text{Reduce}\left[\frac{3}{x} == \text{Abs}[x+1] - 3, x, \text{Reals}\right]$$

$$x == -3 \ || \ x == -1 \ || \ x == 3$$

2

$$\text{Reduce}\left[\frac{x^2 - 3x + 2}{x^2 - 9} \geq 0, x, \text{Reals}\right]$$

$$x < -3 \ || \ 1 \leq x \leq 2 \ || \ x > 3$$

3

$$\text{Reduce}\left[2^{3x+1} \frac{8^{2x-4}}{\sqrt{16^{x+1}}} == \left(\frac{1}{32}\right)^{3-x}, x, \text{Reals}\right]$$

$$x == -1$$

4

$$\text{Reduce}\left[\text{Log}\left[25, \frac{1}{5} \text{Log}\left[3, 2 - \text{Log}\left[\frac{1}{2}, x\right]\right]\right]\right] == -\frac{1}{2}, x]$$

$$x = 2$$

5

$$\text{Reduce}\left[4 \sin[x]^2 - 8 \cos[x] == -1, x, \text{Reals}\right]$$

$$C[1] \in \text{Integers} \&\& \left(x == -\frac{\pi}{3} + 2\pi C[1] \mid\mid x == \frac{\pi}{3} + 2\pi C[1]\right)$$

B csoport

1

$$\text{Reduce}\left[\frac{3}{x} == \text{Abs}[x + 2] - 2, x, \text{Reals}\right]$$

$$x == -3 \mid\mid x == -\sqrt{3} \mid\mid x == \sqrt{3}$$

2

$$\text{Reduce}\left[\frac{x^2 - x - 2}{x^2 - 16} \leq 0, x, \text{Reals}\right]$$

$$-4 < x \leq -1 \mid\mid 2 \leq x < 4$$

3

$$\text{Reduce}\left[2^{4x-1} \frac{8^{2x-5}}{\sqrt{16^{x+1}}} == \left(\frac{1}{64}\right)^{2-x}, x, \text{Reals}\right]$$

$$x = 3$$

4

$$\text{Reduce}\left[\text{Log}\left[8, \frac{1}{2} \text{Log}\left[5, 2 - \text{Log}\left[\frac{1}{3}, x\right]\right]\right]\right] == -\frac{1}{3}, x]$$

$$x = 27$$

5

$$\text{Reduce}\left[4 \sin[x]^2 + 8 \cos[x] + 1 == 0, x, \text{Reals}\right]$$

$$C[1] \in \text{Integers} \&\& \left(x == -\frac{2\pi}{3} + 2\pi C[1] \mid\mid x == \frac{2\pi}{3} + 2\pi C[1]\right)$$

Csütörtök

A csoport

1

$$\text{Reduce}\left[\sqrt{7-2x} = \sqrt{3-x} + \frac{2}{\sqrt{3-x}}, x, \text{Reals}\right]$$

$$x = -1$$

2

$$\text{Reduce}\left[9^{x+1} + 1 = 3^{x+2} + 3^x, x, \text{Reals}\right]$$

$$x = -2 \quad || \quad x = 0$$

3

$$\text{Reduce}\left[\text{Log}\left[\frac{1}{2}, x^2 - 2x - 2\right] > 0, x, \text{Reals}\right]$$

$$-1 < x < 1 - \sqrt{3} \quad || \quad 1 + \sqrt{3} < x < 3$$

4

$$\text{Reduce}[\text{Cos}[2x] - 2 \text{Sin}[x] = -3, x, \text{Reals}]$$

$$C[1] \in \text{Integers} \quad \&\& \quad x = \frac{\pi}{2} + 2\pi C[1]$$

5

A hányados:

$$\text{Reduce}\left[\frac{2}{q} (1 + q + q^2) = 7, q, \text{Reals}\right]$$

$$q = \frac{1}{2} \quad || \quad q = 2$$

B csoport

1

$$\text{Reduce}\left[\sqrt{5-3x} = \sqrt{2-x} + \frac{3}{\sqrt{2-x}}, x, \text{Reals}\right]$$

$$x = -\frac{5}{2}$$

2

$$\text{Reduce}[9^x + 9 == 3^{x+2} + 3^x, x, \text{Reals}]$$

$$x == 0 \quad || \quad x == 2$$

3

$$\text{Reduce}[\text{Log}[1/2, x^2 + 2x - 2] > 0, x, \text{Reals}]$$

$$-3 < x < -1 - \sqrt{3} \quad || \quad -1 + \sqrt{3} < x < 1$$

4

$$\text{Reduce}[\text{Cos}[2x] + 2 \text{Sin}[x] == -3, x, \text{Reals}]$$

$$C[1] \in \text{Integers} \quad \&\& \quad x == -\frac{\pi}{2} + 2\pi C[1]$$

5

A hányados:

$$\text{Reduce}\left[\frac{3}{q} (1 + q + q^2) == 13, q, \text{Reals}\right]$$

$$q == \frac{1}{3} \quad || \quad q == 3$$

Péntek

A csoport

1

$$\text{Reduce}[\text{Abs}[x^2 + 5x] - x^2 - 2 == 0, x, \text{Reals}]$$

$$x == -2 \quad || \quad x == -\frac{1}{2} \quad || \quad x == \frac{2}{5}$$

2

$$\text{Reduce}\left[\frac{x}{x+3} > \frac{1}{x-1}, x\right]$$

$$x < -3 \quad || \quad -1 < x < 1 \quad || \quad x > 3$$

3

$$\text{Reduce} \left[\left(\frac{1}{4} \right)^{x^2-x-5} == \left(\frac{1}{8} \right)^{2x}, x, \text{Reals} \right]$$

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

4

$$\text{Reduce} [\text{Log}[1/3, \text{Log}[2, \text{Log}[1/2, x]]] == 0, x]$$

$$x == \frac{1}{4}$$

5

$$\text{Reduce} [2 \text{Cos}[x]^2 + \text{Sin}[x] - 1 == 0, x, \text{Reals}]$$

$$C[1] \in \text{Integers} \quad \&\& \quad \left(x == \frac{\pi}{2} + 2\pi C[1] \quad || \quad x == -\frac{5\pi}{6} + 2\pi C[1] \quad || \quad x == -\frac{\pi}{6} + 2\pi C[1] \right)$$

B csoport

1

$$\text{Reduce} [\text{Abs}[x^2 - 5x] - x^2 - 3 == 0, x, \text{Reals}]$$

$$x == -\frac{3}{5} \quad || \quad x == 1 \quad || \quad x == \frac{3}{2}$$

2

$$\text{Reduce} \left[\frac{3}{x-2} < \frac{x}{x+2}, x \right]$$

$$x < -2 \quad || \quad -1 < x < 2 \quad || \quad x > 6$$

3

$$\text{Reduce} \left[\left(\frac{1}{8} \right)^{x^2-x+2} == \left(\frac{1}{4} \right)^{3x}, x, \text{Reals} \right]$$

$$x == 1 \quad || \quad x == 2$$

4

$$\text{Reduce} [\text{Log}[1/2, \text{Log}[2, \text{Log}[1/2, x]]] == -1, x]$$

$$x == \frac{1}{16}$$

5

Reduce [$2 \sin[x]^2 + \cos[x] - 1 = 0$, x , **Reals**]

$$C[1] \in \text{Integers} \ \&\& \ \left(x = 2\pi C[1] \ || \ x = -\frac{2\pi}{3} + 2\pi C[1] \ || \ x = \frac{2\pi}{3} + 2\pi C[1] \right)$$