

Vježbanje (Eksponencijalne jednačine)

1. Riješiti sledeće jednačine:

$$a) 2^x = 2^7;$$

$$b) 16^x = 4;$$

$$c) 2^x = 2^{-5};$$

$$d) 2^x = \sqrt[3]{16};$$

$$e) \left(\frac{1}{3}\right)^x = \frac{1}{9};$$

$$f) \left(\frac{4}{9}\right)^x = \left(\frac{3}{2}\right)^{-5};$$

$$g) \left(\frac{1}{27}\right)^x = 81;$$

$$h) \left(\frac{2}{3}\right)^x = \sqrt[3]{1,5};$$

$$i) (0,5)^x = 8^{-3};$$

$$j) 4^{3-x} = 2;$$

$$k) 16^{x-3} = (0,25)^{-3}.$$

2. Riješiti sledeće jednačine:

$$a) 2^{x-1} = 2\sqrt{2};$$

$$b) 8^{-x+4} = 2\sqrt{2};$$

$$c) \left(\frac{4}{5}\right)^{0,8x} = \frac{125}{64};$$

$$d) 10^{1-\frac{x}{3}} = \sqrt[3]{1000};$$

$$e) 7^{x-7} = 49\sqrt{7}.$$

3. Riješiti sledeće jednačine:

$$a) \left(\frac{3}{5}\right)^{2x} = \left(\frac{25}{9}\right)^{-3};$$

$$b) \left(\frac{4}{3}\right)^{3x} = \left(\frac{27}{64}\right)^{-7};$$

$$c) (0,8)^{x+2} = (1,25)^{-4};$$

$$d) 5^{x^2-8x+12} = 1;$$

$$e) 5^{x^2-2x-1} = 25;$$

$$f) (0,2)^{x^2+5x-37,5} = 5\sqrt{5};$$

$$g) \left(\frac{1}{0,125}\right)^{2x} = 128$$

$$h) 5^{x-3} = \frac{1}{25}.$$

4. Riješiti sledeće jednačine:

$$a) 4 \cdot 2^{2x+1} = \frac{1}{8};$$

$$b) \left(\frac{8}{27}\right)^{x+1} = \frac{3}{2};$$

$$c) 4^{5-9x} = \left(\frac{1}{8}\right)^{x-2};$$

$$d) 81^{2-x} = \left(\frac{1}{3}\right)^{5x-6};$$

$$e) 3^x \sqrt{27} = \left(\frac{1}{9}\right)^x;$$

$$f) 4^x \cdot 0,5^x \cdot 2^{2x-1} = 16;$$

$$g) 8^x \cdot \left(\frac{1}{4}\right)^{x-2} = 0,25 \cdot \frac{1}{2};$$

$$h) 125^x \cdot \left(\frac{1}{25}\right)^{x+3} = 0,2.$$

5. Riješiti sledeće jednačine:

$$a) 5^{x+1} + 5^{x+2} = 6;$$

$$b) 3^{x+2} - 3^{x-1} = 78;$$

$$c) 2^{2x-1} + 3 \cdot 2^{2x} - 2^{2x+2} + 1 = 0;$$

$$d) 3^{x+2} + 3^x = 90.$$

6. Riješiti sledeće jednačine metodom zamjene promjenljivih:

$$a) 3^{2x} + 3^x = 12;$$

$$b) 2^{2x} = 10 \cdot 2^x - 16;$$

$$c) 3^{-2x} + 7 \cdot 3^{-x} - 30 = 0.$$