

Precorso di Analisi (esercizi)
Equazioni e disequazioni esponenziali e logaritmiche

1. Risolvere le seguenti equazioni e disequazioni esponenziali

$$2^x < 32 \quad (1a)$$

$$\left(\frac{1}{3}\right)^x = 81 \quad (1b)$$

$$\left(\frac{1}{2}\right)^x = 64 \quad (1c)$$

$$(0.1)^x > \frac{1}{1000} \quad (1d)$$

$$\left(\frac{2}{5}\right)^x > \frac{16}{625} \quad (1e)$$

$$\left(\frac{3}{2}\right)^x = \frac{32}{243} \quad (1f)$$

$$(0.6)^x < \frac{27}{125} \quad (1g)$$

$$(0.5)^{-x} = 8 \quad (1h)$$

$$2^{2x+1} : \left(\frac{1}{2}\right)^{3x+2} < 8 \quad (1i)$$

$$2^x \sqrt{x} > 8 \quad (1j)$$

$$\sqrt{x} 2^{x+1} \sqrt{x} < 4 \quad (1k)$$

$$(3^{x+1})^{x-1} - 3^{2x^2-1} 3^{2-x^2} + 216 > 0 \quad (1l)$$

$$2^{2x} - 5 \cdot 2^x + 4 < 0 \quad (1m)$$

$$7 \cdot 49^x - 50 \cdot 7^x + 7 > 0 \quad (1n)$$

$$3^x + \frac{1}{3 \cdot 3^x} > \frac{28}{9} \quad (1o)$$

2. Risolvere le seguenti equazioni e disequazioni logaritmiche

$$\log(x+2) + \log(x+1) = \log(5x+2) \quad (2a)$$

$$\log x + 2 \log(x+3) < \log(x^3 + 15) \quad (2b)$$

$$\log(1-x) + \log(1-2x) = \log 15 + \log(x+3) \quad (2c)$$

$$\ln(1-x) + \ln(2-x) + \ln(4+x) = \ln(x^3 + 47) \quad (2d)$$

$$\log(x^2 - 6x + 9) < \log x - \log 4 \quad (2e)$$

$$\ln(2x+7) - \ln 2 < 2 \ln(x+5) - \ln(5-x) \quad (2f)$$

$$\log_3(x^2 - 2x + 1) - \log_3(2x^2 + 3x - 5) > 0 \quad (2g)$$

$$3 \log(x-2) > \log x + \log(x^2 - 14) \quad (2h)$$

$$\ln(3+2x) + \ln(3-2x) - 2 \ln 3 < 2 \ln(2x+1) \quad (2i)$$

$$\log(2x-1) + \log(3x-8) - \log x - \log(x-2) > \log 5 - \log 3 \quad (2j)$$