

10 Extra opgaven: herhaling

Opgave 10.1. Schrijf zonder gebroken of negatieve machten

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|-----------------------|-----------------------------------|----------------------------------|
| a. $2^{\frac{1}{2}}$ | e. $2^{\frac{2}{3}}$ | i. $(\frac{1}{2})^{\frac{1}{3}}$ |
| b. 2^{-1} | f. $(\frac{1}{2})^{\frac{1}{2}}$ | j. $(\frac{1}{2})^{\frac{2}{3}}$ |
| c. $2^{-\frac{1}{2}}$ | g. $(\frac{1}{2})^{-1}$ | k. $\sqrt{2^{\frac{2}{3}}}$ |
| d. $2^{\frac{1}{3}}$ | h. $(\frac{1}{2})^{-\frac{1}{2}}$ | |

Opgave 10.2. Bereken

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| a. $\ln e$ | e. $\ln \frac{1}{e}$ | i. ${}^2\log \frac{2}{\sqrt{32}}$ |
| b. $\ln 1$ | f. $\ln \frac{1}{\sqrt[3]{e^2}}$ | j. ${}^4\log 2$ |
| c. $\ln e^3$ | g. ${}^2\log \sqrt{8}$ | k. $\frac{1}{2}\log 4$ |
| d. $\ln \sqrt{e}$ | h. ${}^3\log 3\sqrt{3}$ | l. $\frac{1}{4}\log \sqrt{2}$ |

Opgave 10.3. Los op

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|----------------------|---------------------------|----------------------------|
| a. $x^2 = 6$ | f. $x^{\frac{4}{5}} = 6$ | k. $e^x = -6$ |
| b. $\sqrt{x} = 6$ | g. $x^{-\frac{4}{5}} = 6$ | l. $\ln x = -6$ |
| c. $\frac{1}{x} = 6$ | h. $x^2 = -6$ | m. $x^{\frac{4}{5}} = -6$ |
| d. $e^x = 6$ | i. $\sqrt{x} = -6$ | n. $x^{-\frac{4}{5}} = -6$ |
| e. $\ln x = 6$ | j. $\frac{1}{x} = -6$ | o. $x^3 = -6$ |

Opgave 10.4. Los op

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|-----------------------------------|----------------------------|-----------------------------|
| a. $\cos x = 0$ | d. $\sin x = \cos x$ | g. $\cos^2 x = \frac{3}{4}$ |
| b. $\sin x = \frac{1}{2}\sqrt{3}$ | e. $\sin x = -\frac{1}{2}$ | h. $\sin x = -\cos x$ |
| c. $\sin^2 x = \frac{1}{2}$ | f. $\cos x + 1 = 0$ | i. $2\sin x + \sqrt{2} = 0$ |

Opgave 10.5. Los op

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|------------------------------------|---------------------------------------|
| a. $e^x - xe^x = 0$ | e. $5x \ln x + x^2 \ln x = 0$ |
| b. $x \ln x - x = 0$ | f. $6 + 5 \ln x + (\ln x)^2 = 0$ |
| c. $2x \sin x + x = 0$ | g. $2 \cos^2 x - \sqrt{3} \cos x = 0$ |
| d. $\sin 2x - \sqrt{3} \sin x = 0$ | h. $\sin 2x - \sqrt{2} \cos x = 0$ |

Opgave 10.6. Los op

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|-----------------------------|----------------------------|
| a. $-x^2 + 3x - 2 < 0$ | d. $e^x - 2 > 0$ |
| b. $x^3 - 5x^2 + 6x \geq 0$ | e. $x^4 - 2x^2 \geq 0$ |
| c. $(x-1)(x+1)(x+2) \geq 0$ | f. $(4-x)(e^x - 1) \geq 0$ |

Opgave 10.7. Vereenvoudig

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| a. $\frac{x^2 + 3x}{x^2 - 5x}$ | c. $\frac{(x+4)(4x-x^2) + (x^3+8x)(4+x)^2}{x(x+4)^6}$ |
| b. $\frac{(x+2)e^x - (x+2)^2}{x+2}$ | d. $\frac{(3-x)\cos x + (x-3)\sin 2x}{(3-x)^2 \cos x}$ |

10 Antwoorden extra opgaven: herhaling

Opgave 10.1.

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| a. $\sqrt{2}$ | e. $\sqrt[3]{4}$ | i. $\frac{1}{\sqrt[3]{2}}$ |
| b. $\frac{1}{2}$ | f. $\frac{1}{\sqrt{2}}$ | j. $\frac{1}{\sqrt[3]{4}}$ |
| c. $\frac{1}{\sqrt{2}}$ | g. 2 | k. $\sqrt[3]{2}$ |
| d. $\sqrt[3]{2}$ | h. $\sqrt{2}$ | |

Opgave 10.2.

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|------------------|-------------------|-------------------|
| a. 1 | e. -1 | i. $-\frac{3}{2}$ |
| b. 0 | f. $-\frac{2}{3}$ | j. $\frac{1}{2}$ |
| c. 3 | g. $\frac{3}{2}$ | k. -2 |
| d. $\frac{1}{2}$ | h. $\frac{3}{2}$ | l. $-\frac{1}{4}$ |

Opgave 10.3.

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| a. $x = \pm\sqrt{6}$ | f. $x = \pm 6^{\frac{5}{4}} = \pm 6\sqrt[4]{6}$ | k. geen oplossingen |
| b. $x = 36$ | g. $x = \pm 6^{-\frac{5}{4}} = \pm \frac{1}{6\sqrt[4]{6}}$ | l. $x = e^{-6} = \frac{1}{e^6}$ |
| c. $x = \frac{1}{6}$ | h. geen oplossingen | m. geen oplossingen |
| d. $x = \ln 6$ | i. geen oplossingen | n. geen oplossingen |
| e. $x = e^6$ | j. $x = -\frac{1}{6}$ | o. $x = -\sqrt[3]{6}$ |

Opgave 10.4. In het volgende is k steeds een geheel getal

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| a. $x = \pm\frac{\pi}{2} + k \cdot 2\pi$ | d. $x = \frac{\pi}{4} + k \cdot \pi$ | g. $x = \pm\frac{\pi}{6} + k \cdot \pi$ |
| b. $x = \frac{\pi}{3} + k \cdot 2\pi$
of $x = \frac{2\pi}{3} + k \cdot 2\pi$ | e. $x = -\frac{\pi}{6} + k \cdot 2\pi$
of $x = \frac{7\pi}{6} + k \cdot 2\pi$ | h. $x = \frac{3\pi}{4} + k \cdot \pi$ |
| c. $x = \pm\frac{\pi}{4} + k \cdot \pi$ | f. $x = \pi + 2 \cdot k \cdot \pi$ | i. $x = -\frac{\pi}{4} + k \cdot 2\pi$
of $x = \frac{5\pi}{4} + k \cdot 2\pi$ |

Opgave 10.5.

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| a. $x = 1$ | e. $x = 1$ ($x = 0$ en $x = -5$ kunnen niet door \ln) |
| b. $x = e$ | f. $x = e^{-2}$ of $x = e^{-3}$ |
| c. $x = 0$ of $x = -\frac{\pi}{6} + k \cdot 2\pi$ of $x = \frac{7\pi}{6} + k \cdot 2\pi$ | g. $x = \pm\frac{\pi}{2} + k \cdot 2\pi$ of $x = \pm\frac{\pi}{6} + k \cdot 2\pi$ |
| d. $x = k \cdot \pi$ of $x = \pm\frac{\pi}{6} + k \cdot 2\pi$ | h. $x = \frac{\pi}{2} + k \cdot \pi$ of $x = \frac{\pi}{4} + k \cdot 2\pi$ of $x = \frac{3\pi}{4} + k \cdot 2\pi$ |

Opgave 10.6.

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| a. $x < 1$ of $x > 2$ | d. $x > \ln 2$ |
| b. $0 \leq x \leq 2$ of $x \geq 3$ | e. $x \leq -\sqrt{2}$ of $x = 0$ of $x \geq \sqrt{2}$ |
| c. $-2 \leq x \leq -1$ of $x \geq 1$ | f. $0 \leq x \leq 4$ |

Opgave 10.7.

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| a. $\frac{x+3}{x-5}, x \neq 0$ | c. $\frac{(4-x) + (x^2+8)(4+x)}{(x+4)^5}, x \neq 0$ |
| b. $e^x - x - 2, x \neq -2$ | d. $\frac{1-2\sin x}{3-x}, \cos x \neq 0$ |