

*restart;***Aufgabe 3: Grundlagen**

$$\frac{7}{9} + \frac{5}{\frac{4}{13}}$$

$$\frac{613}{36} \quad (1.1)$$

$$\sqrt{3} \cdot \sin\left(\frac{2}{3} \cdot \pi\right)$$

$$\frac{3}{2} \quad (1.2)$$

$$\int_0^{\pi} \frac{x^{\frac{5}{2}}}{x^2 + 1} dx$$

$$-\frac{1}{12} \sqrt{2} \left( -4 \sqrt{2} \pi^{3/2} + 3 \ln\left(\frac{\pi - \sqrt{2} \sqrt{\pi + 1}}{\pi}\right) - 6 \arctan\left(\frac{1 + \sqrt{2} \sqrt{\pi}}{-1 + 2 \pi}\right) \right)$$

$$- 3 \ln\left(\frac{\pi + \sqrt{2} \sqrt{\pi + 1}}{\pi}\right) - 6 \arctan\left(\frac{\sqrt{2} \sqrt{\pi} - 1}{-1 + 2 \pi}\right) + 6 \pi \quad (1.3)$$

$$\frac{d}{d t} \operatorname{arccosh}(t)$$

$$\frac{1}{\sqrt{t-1} \sqrt{t+1}} \quad (1.4)$$

$$e^{\ln(42)}$$

$$42 \quad (1.5)$$

$$0^0$$

$$1 \quad (1.6)$$

**Aufgabe 4: Primzahlen**

$$\text{isprime}(11111111111111111111)$$

$$\text{false} \quad (2.1)$$

$$\text{isprime}(1111111111111111111)$$

$$\text{true} \quad (2.2)$$

$$\text{isprime}(4776913109852041418248056622882488319)$$

$$\text{true} \quad (2.3)$$

$$\text{isprime}(56713727820156410577229101238628035243)$$

$$\text{true} \quad (2.4)$$

$$\text{isprime}(317810483173934359805482319433298719761)$$

$$\text{false} \quad (2.5)$$

**Aufgabe 5: Maple-Hilfe**

$$\text{expand}\left(\frac{x^5 - y^5}{x^6 - y^6}\right)$$

$$\frac{x^5}{x^6 - y^6} - \frac{y^5}{x^6 - y^6} \quad (3.1)$$

$$\text{factor}\left(\frac{x^5 - y^5}{x^6 - y^6}\right)$$

$$\frac{x^4 + yx^3 + y^2x^2 + y^3x + y^4}{(y+x)(x^2 + xy + y^2)(y^2 - xy + x^2)} \quad (3.2)$$

$$\text{normal}\left(\frac{x^5 - y^5}{x^6 - y^6}\right)$$

$$\frac{x^4 + yx^3 + y^2x^2 + y^3x + y^4}{x^5 + yx^4 + y^2x^3 + y^3x^2 + y^4x + y^5} \quad (3.3)$$