

Differentieer Antwoorden**oefening 2**

1. $f'(x) = 12x^3 - 6x^2 + 2x$

2. $f'(x) = 9x^8 - 36x^5 + 36x^2$

3. $f'(x) = 2\frac{1}{2}x\sqrt{x} + 3x^2$

4. $f'(x) = \frac{-3}{2x^2}$

5. $f'(x) = \frac{-3}{x^4}$

6. $f'(x) = \frac{-4}{9x^5}$

7. $f'(x) = 1 - \frac{1}{x^2} + \frac{6}{x^3} = \frac{x^3 - x + 6}{x^3}$

8. $f'(x) = 7\frac{1}{2}x\sqrt{x}$

9. $f'(x) = \frac{2}{5}\sqrt[5]{\frac{3}{x^3}}$

10. $f'(x) = 10x + 81x^2 - 108x + 36$

11. $f(x) = \frac{3}{\sqrt{x}} = 3 \cdot x^{-\frac{1}{2}} \Rightarrow f'(x) = -1\frac{1}{2} \cdot x^{-\frac{1}{2}} = \frac{-3}{2x\sqrt{x}}$

12. $f(x) = (x^2 - 2)^3 = x^6 - 6x^4 + 12x^2 - 8 \Rightarrow f'(x) = 6x^5 - 24x^3 + 24x$

13. $f(x) = \frac{3x-2}{2x^2} = \frac{3}{2} \cdot x^{-1} - x^{-2} \Rightarrow f'(x) = -\frac{3}{2}x^{-2} + 2x^{-3} = \frac{-3}{2x^2} + \frac{2}{x^3}$

14. $f(x) = x^2 \cdot \sqrt{3x} = x^2 \cdot x^{\frac{1}{2}} \cdot \sqrt{3} = x^{2\frac{1}{2}} \cdot \sqrt{3} \Rightarrow f'(x) = 2\frac{1}{2}\sqrt{3} \cdot x^{\frac{1}{2}}$

15. $g(x) = -1,5x^2 + 6x - 1$

16. $K'(q) = (2q-1)^5 \cdot 0,5 \cdot q^{-0,5} + 5 \cdot (2q-1)^4 \cdot 2 \cdot \sqrt{q}$

17. $T(t) = \frac{4t^2 - 6t + 1}{t} = 4t - 6 + t^{-1}$ dus $T'(t) = 4 - t^{-2}$

18. $f(x) = \frac{1 + \sin x}{1 - \sin x}$ dus $f'(x) = \frac{(1 - \sin x) \cdot \cos x - (1 + \sin x) \cdot -\cos x}{(1 - \sin x)^2}$

19. $g(x) = -1,5x^2 + 6x - 1$

20. $K'(q) = (2q-1)^5 \cdot 0,5 \cdot q^{-0,5} + 5 \cdot (2q-1)^4 \cdot 2 \cdot \sqrt{q}$