

Primitiveren oefening 1 Antwoorden

$$1. f(x) = (2x-1)^3 = 8x^3 - 12x^2 + 6x - 1 \Rightarrow F(x) = 2x^4 - 4x^3 + 3x^2 - x$$

$$2. f(x) = \frac{5}{4x^2} = \frac{5}{4} \cdot x^{-2} \Rightarrow F(x) = \frac{5}{4} \cdot -1 \cdot x^{-1} = \frac{-5}{4x}$$

$$3. f(x) = (3+2\sqrt{x})^2 = 9+12 \cdot x^{\frac{1}{2}} + 4x \Rightarrow F(x) = 9x + 8 \cdot x^{\frac{1}{2}} + 2x^2$$

$$4. f(x) = x^2 \cdot \sqrt[5]{x^3} = x^{2\frac{3}{5}} \Rightarrow F(x) = \frac{5}{18} \cdot x^{\frac{3}{5}}$$

$$5. f(x) = \sqrt{4x} = 2 \cdot x^{\frac{1}{2}} \Rightarrow F(x) = \frac{4}{3} x^{\frac{1}{2}}$$

$$6. f(x) = \frac{5+2x}{3x^3} = \frac{5}{3} \cdot x^{-3} + \frac{2}{3} \cdot x^{-2} \Rightarrow F(x) = -\frac{5}{6} x^{-2} - \frac{2}{3} \cdot x^{-1}$$

$$7. f(x) = (x^3-3)(x^2+x) = x^5 + x^4 - 3x^2 - 3x \Rightarrow F(x) = \frac{1}{6} x^6 + \frac{1}{5} x^5 - x^3 - \frac{3}{2} x^2$$

$$8. f(x) = \frac{x^3-1}{x-1} = x^2 + x + 1 \Rightarrow F(x) = \frac{1}{3} x^3 + \frac{1}{2} x^2 + x$$

$$9. f(x) = (x^2 - \frac{1}{x})x = x^3 - 1 \Rightarrow F(x) = \frac{1}{4} x^4 - x$$

$$10. f(x) = \frac{x^4-9}{x^2+3} = x^2 - 3 \Rightarrow F(x) = \frac{1}{3} x^3 - 3x$$

$$11. f(x) = \frac{2}{\sqrt{x}} = 2 \cdot x^{-\frac{1}{2}} \Rightarrow F(x) = 4x^{\frac{1}{2}}$$

$$12. f(x) = \frac{-2}{5x^2} = \frac{-2}{5} \cdot x^{-2} \Rightarrow F(x) = \frac{-2}{5} x^{-1}$$

$$13. f(x) = (3-2x^2)^3 = 27 - 54x^2 + 36x^4 - 8x^6 \Rightarrow F(x) = 27x - 18x^3 + \frac{36}{5} x^5 - \frac{8}{7} x^7$$

$$14. f(x) = \frac{8x^2+5x}{2x} = 4x + \frac{5}{2} \Rightarrow F(x) = 2x^2 + \frac{5}{2} x$$

$$15. f(x) = \frac{3x}{2\sqrt{x}} = \frac{3}{2} x^{\frac{1}{2}} \Rightarrow F(x) = x^{\frac{1}{2}}$$

$$16. f(x) = \frac{1}{2x^2} + \frac{\sqrt{x}}{3} = \frac{1}{2} x^{-2} + \frac{1}{3} x^{\frac{1}{2}} \Rightarrow F(x) = -\frac{1}{2} x^{-1} + \frac{1}{2} x^{\frac{1}{2}}$$

$$17. f(x) = 5 \cdot \sqrt{x^3} = 5 \cdot x^{\frac{3}{2}} \Rightarrow F(x) = 2 \cdot x^{\frac{5}{2}}$$

$$f(x) = (x+2)^4 = x^4 + 8x^3 + 24x^2 + 32x + 16 \Rightarrow$$

$$18. F(x) = \frac{1}{5} 4x^5 + 2x^4 + 8x^3 + 16x^2 + 16x$$

$$19. f(x) = \frac{7x^2}{5\sqrt{x}} = \frac{7}{5} x^{\frac{1}{2}} \Rightarrow F(x) = \frac{14}{25} x^{\frac{3}{2}}$$

$$20. f(x) = (2x\sqrt{x})^3 = 8x^{4\frac{1}{2}} \Rightarrow F(x) = \frac{16}{11} x^{\frac{5}{2}}$$