

Naam student: _____
 Leerjaar: _____
 Klas: Bo Bb
 Nummer toets volgens OER: _____
 Datum: _____

Cijfer: _____

Differentieer

1) $5x^3$ $15x^2$

2) $3x^5 + 2$ $15x^4$

3) $2x^4 - 3x$ $8x^3 - 3$

4) $2x^{10} + 10x^2 - 2x$ $20x^9 + 20x - 2$

5) $\frac{1}{x} = x^{-1}$ $-1x^{-2} = -\frac{1}{x^2}$

6) $\frac{1}{x^3} = x^{-3}$ $-3x^{-4} = -\frac{3}{x^4}$

7) $\frac{5}{x^2} = 5x^{-2}$ $-10x^{-3} = -\frac{10}{x^3}$

8) $\frac{3}{x^2+x}$ $\frac{(x^2+x) \cdot 0 - 3(2x+1)}{(x^2+x)^2} = \frac{-6x-3}{(x^2+x)^2}$

9) $\frac{3x}{2x^2+4x}$ $\frac{(2x^2+4x) \cdot 3 - 3x(4x+4)}{(2x^2+4x)^2} = \frac{-6x^2}{(2x^2+4x)^2}$

10) $\frac{7x+1}{5x-4} + x$ $\frac{(5x-4) \cdot 7 + (7x+1) \cdot 5}{(5x-4)^2} = \frac{-33}{(5x-4)^2}$

11) $(2x+5)(16x^2-3x+1)$ $2(16x^2-3x+1) + (2x+5)(32x-3) = 96x^2 + 148x - 13$

12) $(x^2-1)(-x^3+x^2-5x-10)$ $2x(-x^3+x^2-5x-10) + (x^2-1)(-3x^2+2x-5) = -5x^4 + 4x^3 - 12x^2 - 22x + 5$

13	$\sin(x)$	$\cos(x)$
14	$\cos(x) + 2$	$-\sin(x)$
15	$-3\sin(x) - 15x$	$-3\cos(x) - 15$
16	$3\cos(x^2) + 3$	$-3\sin(x^2) \cdot 2x = -6x\sin(x^2)$
17	$\frac{\sin(x)}{\cos(x)}$	$\frac{\cos(x) \cdot \cos(x) - \sin(x) \cdot -\sin(x)}{(\cos(x))^2 \cdot \frac{\cos(x)^2 + \sin(x)^2}{\cos(x)^2}} =$
18	e^x	e^x
19	$3e^{2x}$	$6e^{2x}$
20	$\sqrt{x+2} = (x+2)^{\frac{1}{2}}$	$\frac{1}{2}(x+2)^{-\frac{1}{2}} = \frac{1}{2\sqrt{x+2}}$
21	$\sqrt{2x-4} = (2x-4)^{\frac{1}{2}}$	$\frac{1}{2}(2x-4)^{-\frac{1}{2}} \cdot 2 = \frac{1}{\sqrt{2x-4}}$
22	$\frac{1}{\sqrt{x^2-2x}} (x^2-2x)^{-\frac{1}{2}}$	$-\frac{1}{2}(x^2-2x)^{-\frac{1}{2}} (2x-2) = -\frac{2x-2}{(x^2-2x)\sqrt{x^2-2x}}$
23	$(x+1)\sqrt{x+1} = (x+1)^{\frac{3}{2}}$	$\frac{3}{2}(x+1)^{\frac{1}{2}} = \frac{3}{2}\sqrt{x+1}$
24	3^x	$3^x \cdot \ln(3)$
25	$3^{9x+2} + 1$	$3^{9x+2} \cdot \ln(3) \cdot 9$
26	$(3x+2)(6x-3)^4$	$3(6x-3)^4 + (3x+2) \cdot 4(6x-3)^3 \cdot 6$ $3(6x-3)^4 + 24(3x+2)(6x-3)^3$