

## M11 - S. 66 - Aufgabe 5

- a)  $f'(x) = 2(2 + x)$   $x_{11} = -2$   $\mathbb{D}_f = \mathbb{R}$   
 $] - \infty; -2]$  smf  $[-2; \infty[$  sms
- b)  $f'(x) = (x - 3)(x + 3)$   $x_{11} = -3, x_{12} = 3$   $\mathbb{D}_f = \mathbb{R}$   
 $] - \infty; -3]$  sms  $[-3; 3]$  smf  $[3; \infty[$  sms
- c)  $f'(x) = -\frac{1}{2}x^3 + 4$   $x_{11} = 2$   $\mathbb{D}_f = \mathbb{R}$   
 $] - \infty; 2]$  sms  $[2; \infty[$  smf
- d)  $f'(x) = x^3(x - 1)$   $x_{11} = 0, x_{12} = 1$   $\mathbb{D}_f = \mathbb{R}$   
 $] - \infty; 0]$  sms  $[0; 1]$  smf  $[1; \infty[$  sms
- e)  $f'(x) = -\frac{2x}{(x-2)^2(x+2)^2}$   $x_{11} = 0$   $\mathbb{D}_f = \mathbb{R} \setminus \{-2; 2\}$   
 $] - \infty; -2[ \cup ] -2; 0]$  sms  $[0; 2[ \cup ]2; \infty[$  smf
- f)  $f'(x) = 1/(x + 1)^2$   $f'(x) \neq 0$   $\mathbb{D}_f = \mathbb{R} \setminus \{-1\}$   
 $] - \infty; -1[ \cup ] -1; \infty[$  sms
- g)  $f'(x) = \frac{-2x-2}{(x-1)^3}$   $x_{11} = -1$   $\mathbb{D}_f = \mathbb{R} \setminus \{1\}$   
 $] - \infty; -1]$  smf  $[-1; 1[$  sms  $]1; \infty[$  smf
- h)  $f'(x) = \frac{2x}{(x+1)^3}$   $x_{11} = 0$   $\mathbb{D}_f = \mathbb{R} \setminus \{-1\}$   
 $] - \infty; -1[$  sms  $]-1; 0]$  smf  $[0; \infty[$  sms