



Mathematik-Übungsblatt mit Lösungen von www.worksheeps.de / www.mathe-aufgaben.net
 Mathe-Aufgaben mit Lösungen einfach schnell selbst erstellen.

Quotientenregel

$$1) f(x) = \frac{(-10)x^{12}}{((-14)x+(-11))^{49}}$$

$$f'(x) = \frac{(-120)x^{11}}{((-14)x+(-11))^{49}} - \frac{6860x^{12}}{((-14)x+(-11))^{50}}$$

$$f''(x) = -\frac{(-1320)x^{10}}{((-14)x+(-11))^{49}} - \frac{164640x^{11}}{((-14)x+(-11))^{50}} + \frac{(-4802000)x^{12}}{((-14)x+(-11))^{51}}$$

$$2) f(x) = \frac{12x^{17}}{((-1)x+(-19))^{27}}$$

$$f'(x) = \frac{204x^{16}}{((-1)x+(-19))^{27}} - \frac{(-324)x^{17}}{((-1)x+(-19))^{28}}$$

$$f''(x) = -\frac{3264x^{15}}{((-1)x+(-19))^{27}} - \frac{(-11016)x^{16}}{((-1)x+(-19))^{28}} + \frac{9072x^{17}}{((-1)x+(-19))^{29}}$$

$$3) f(x) = \frac{9x^{14}}{((-1)x+(-16))^{44}}$$

$$f'(x) = \frac{126x^{13}}{((-1)x+(-16))^{44}} - \frac{(-396)x^{14}}{((-1)x+(-16))^{45}}$$

$$f''(x) = -\frac{(1638)x^{12}}{((-1)x+(-16))^{44}} - \frac{(-11088)x^{13}}{((-1)x+(-16))^{45}} + \frac{17820x^{14}}{((-1)x+(-16))^{46}}$$

$$4) f(x) = \frac{5x^{25}}{((-11)x+18)^{34}}$$

$$f'(x) = \frac{125x^{24}}{((-11)x+18)^{34}} - \frac{(-1870)x^{25}}{((-11)x+18)^{35}}$$

$$f''(x) = -\frac{3000x^{23}}{((-11)x+18)^{34}} - \frac{(-93500)x^{24}}{((-11)x+18)^{35}} + \frac{719950x^{25}}{((-11)x+18)^{36}}$$

$$5) f(x) = \frac{(-2)x^4}{((-20)x+8)^{41}}$$

$$f'(x) = \frac{(-8)x^3}{((-20)x+8)^{41}} - \frac{1640x^4}{((-20)x+8)^{42}}$$

$$f''(x) = -\frac{(-24)x^2}{((-20)x+8)^{41}} - \frac{13120x^3}{((-20)x+8)^{42}} + \frac{(-1377600)x^4}{((-20)x+8)^{43}}$$

$$6) f(x) = \frac{19x^{13}}{((-15)x+3)^{37}}$$

$$f'(x) = \frac{247x^{12}}{((-15)x+3)^{37}} - \frac{(-10545)x^{13}}{((-15)x+3)^{38}}$$

$$f''(x) = -\frac{(2964)x^{11}}{((-15)x+3)^{37}} - \frac{(-274170)x^{12}}{((-15)x+3)^{38}} + \frac{6010650x^{13}}{((-15)x+3)^{39}}$$

$$7) f(x) = \frac{(-15)x^{23}}{(17x+10)^{42}}$$

$$f'(x) = \frac{(-345)x^{22}}{(17x+10)^{42}} - \frac{(-10710)x^{23}}{(17x+10)^{43}}$$

$$f''(x) = -\frac{(-7590)x^{21}}{(17x+10)^{42}} - \frac{(-492660)x^{22}}{(17x+10)^{43}} + \frac{(-7829010)x^{23}}{(17x+10)^{44}}$$

$$8) f(x) = \frac{3x^{10}}{((-15)x+17)^{33}}$$

$$f'(x) = \frac{30x^9}{((-15)x+17)^{33}} - \frac{(-1485)x^{10}}{((-15)x+17)^{34}}$$

$$f''(x) = -\frac{270x^8}{((-15)x+17)^{33}} - \frac{(-29700)x^9}{((-15)x+17)^{34}} + \frac{757350x^{10}}{((-15)x+17)^{35}}$$

$$9) f(x) = \frac{(-18)x^3}{((-6)x+(-16))^{49}}$$

$$f'(x) = \frac{(-54)x^2}{((-6)x+(-16))^{49}} - \frac{5292x^3}{((-6)x+(-16))^{50}}$$

$$f''(x) = -\frac{(-108)x^1}{((-6)x+(-16))^{49}} - \frac{31752x^2}{((-6)x+(-16))^{50}} + \frac{(-1587600)x^3}{((-6)x+(-16))^{51}}$$

$$10) f(x) = \frac{2x^{18}}{(1x+3)^{32}}$$

$$f'(x) = \frac{36x^{17}}{(1x+3)^{32}} - \frac{64x^{18}}{(1x+3)^{33}}$$

$$f''(x) = -\frac{(612)x^{16}}{(1x+3)^{32}} - \frac{2304x^{17}}{(1x+3)^{33}} + \frac{2112x^{18}}{(1x+3)^{34}}$$