Lösung A1

$u(x) = x^2$ $v(x) = 3x - 2$	$f(x) = (3x-2)^2$	$g(x) = 3x^2 - 2$
$u(x) = x^3$ $v(x) = 3 - x^2$	$f(x) = (3-x^2)^3$	$g(x) = 3 - x^6$
$u(x) = x^2$ $v(x) = x - 1$	$f(x) = (x-1)^2$	$g(x) = x^2 - 1$
$u(x) = x^3$ $v(x) = 2x^3 - 2x$	$f(x) = (2x^3 - 2x)^3$	$g(x) = 2x^9 - 2x^3$
$u(x) = x^3$ $v(x) = 5x^2 - 3$	$f(x) = (5x^2 - 3)^3$	$g(x) = 5x^6 - 3$
$u(x) = x^2$ $v(x) = x^2 - 3x$	$f(x) = (x^2 - 3x)^2$	$g(x) = x^4 - 3x^2$
$u(x) = x^5$ $v(x) = x^2 - 2x$	$f(x) = (x^2 - 2x)^5$	$g(x) = x^{10} - 2x^5$
$u(x) = x^8$ $v(x) = x^2 - x + 2$	$f(x) = (x^2 - x + 2)^8$	$g(x) = x^{16} - x^8 + 2$
$u(x) = x^5$ $v(x) = 3x^3 + 4$	$f(x) = (3x^3 + 4)^5$	$g(x) = 3x^{15} + 4$

Lösung A2

$f(x) = (4x^2 - 3x)^3$	$u(x) = x^3$	$v(x) = 4x^2 - 3x$
$f(x) = (x^2 - 2x)^k$	$u(x) = x^k$	$v(x) = x^2 - 2x$
$f(x) = (5x^2 + x^2 - 4x)^3$	$u(x) = x^3$	$v(x) = 5x^3 + x^2 - 4x$
$f(x) = (5x^4 - 4x^3 - 2x + 5)^4$	$u(x) = x^4$	$v(x) = 5x^4 + 4x^3 - 2x + 5$
$f(x) = -2(2x^3 + 3x^2 + x)^5$	$u(x) = -2x^5$	$v(x) = 2x^3 + 3x^2 + x$
$f(x) = (4 - x^7)^{-6}$	$u(x) = x^{-6}$	$v(x) = 4 - x^7$
$f(x) = \pi cos(2(x-3)) + 1$	$u(x) = \pi\, cos(x) + 1$	$v(x) = 2(x-3)$
$f(x) = \frac{1}{sin\,(0{,}5x-1)}$	$u(x) = sin^{-1}(x)$	$v(x) = 0{,}5x - 1$
$f(x) = 0{,}5\sqrt[3]{(4x^2 - 3x)^2}$	$u(x) = 0{,}5\sqrt[3]{x}$	$v(x) = (4x^2 - 3x)^2$

Lösung A3

a) $g(x) = x^2;\ \ h(x) = x + 3$

$f(x) = (x+3)^2$ $\qquad k(x) = x^2 + 3$

b) $g(x) = x + 1;\ \ h(x) = 7x^2$

$f(x) = 7x^2 + 1$ $\qquad k(x) = 7(x+1)^2$

c) $g(x) = \sqrt{x};\ \ h(x) = 4x + 3$

$f(x) = \sqrt{4x+3}$ $\qquad k(x) = 4\sqrt{x} + 3$

d) $g(x) = (2x+1)^2;\ \ h(x) = 3x$

$f(x) = (6x+1)^2$ $\qquad k(x) = 3 \cdot (2x+1)^2$

e) $g(x) = 4x^{-1};\ \ h(x) = 3x - 2$

$f(x) = 4(3x-2)^{-1}$ $\qquad k(x) = 12x^{-1} - 2$

f) $g(x) = sin\,(3x);\ \ h(x) = 2x^2$

$f(x) = sin\,(6x^2)$ $\qquad k(x) = 2 \cdot sin^2(3x)$

g) $g(x) = e^{2x};\ \ h(x) = (1-x)^2$

$f(x) = e^{2(1-x)^2} = e^{4(1-x)}$ $\qquad k(x) = (1 - e^{2x})^2$

h) $g(x) = x \cdot \cos\,(x);\ \ h(x) = \frac{1}{x}$

$f(x) = \frac{1}{x} cos\left(\frac{1}{x}\right)$ $\qquad k(x) = \frac{1}{x \cdot cos\,(x)}$