# Extrablad användning av f(x)

**Beräkna** $f(0)$ **då**

$f(x) = x$

$f(x) = x + 1$

$f(x) = x - 1$

$f(x) = 3x$

$f(x) = 27$

$f(x) = 2^x$

$f(x) = 5^x$

$f(x) = 11^x$

$f(x) = \sqrt{x}$

$f(x) = x^5$

$f(x) = 7x - 11 + x^2$

$f(x) = \dfrac{1}{x}$

**Beräkna** $f(1)$ **då**

$f(x) = x$

$f(x) = x + 5$

$f(x) = x - 1$

$f(x) = 2x$

$f(x) = 3^x$

$f(x) = 2,5^x$

$f(x) = \sqrt{4x}$

$f(x) = 7x - 11 + x^2$

$f(x) = \dfrac{1}{x}$

**Beräkna** $f(2)$ **då**

$f(x) = x$

$f(x) = x + 2$

$f(x) = x - 2$

$f(x) = 9x$

$f(x) = 42$

$f(x) = 2^x$

$f(x) = 9^x$

$f(x) = \sqrt{18x}$

$f(x) = x^2 + 2$

$f(x) = \dfrac{1}{x}$

$f(x) = x + 1$ **beräkna**

$f(0)$

$f(1)$

$f(2)$

$f(6)$

$f(-1)$

$f(-2)$

$f(a)$

$f(x) = 3x$ **beräkna**

$f(0)$

$f(1)$

$f(2)$

$f(5)$

$f(-1)$

$f(-3)$

$f(a)$

$f(x) = \sqrt{x}$ **beräkna**

$f(0)$

$f(1)$

$f(4)$

$f(36)$

$f(0,25)$

$f(0,36)$

$f(x) = 2x - 1$ **beräkna**

$f(0)$

$f(1)$

$f(2)$

$f(5)$

$f(-1)$

$f(-2)$

$f(a)$

$f(x) = x^2$ **beräkna**

$f(1)$

$f(2)$

$f(5)$

$f(-1)$

$f(-2)$

$f(-5)$

$f(x) = x^2 + 2$ **beräkna**

$f(1)$

$f(2)$

$f(5)$

$f(-1)$

$f(-2)$

$f(x) = 2x - 1$ **beräkna**

$f(a)$

$f(a^2)$

$f(a + 1)$

$f(a^2 + 1)$

$f(1 + h)$

$f(a + h)$

$f(1 + h) - f(1)$

$f(3 + h) - f(3)$

$f(x) = x^2$ **beräkna**

$f(a)$

$f(a^2)$

$f(a + 1)$

$f(a^2 + 1)$

$f(1 + h)$

$f(a + h)$

$f(1 + h) - f(1)$

$f(3 + h) - f(3)$

$f(x) = 2x + 1$ **och**

$g(x) = x^2$ **beräkna**

$f(1) + g(1)$

$g(2) + f(2)$

$f(5) + g(3)$

$f(1) - g(1)$

$g(1) - f(1)$

$f(3) - g(2)$

$f(1) \cdot g(1)$

$f(0) \cdot g(3)$

$g(0) \cdot f(3)$

$f(g(1))$

$g(f(1))$

$f(g(0))$

$g(f(0))$

# Facit

**Beräkna $f(0)$ då**

$f(x) = x = 0$

$f(x) = x + 1 = 0 + 1 = 1$

$f(x) = x - 1 = 0 - 1 = -1$

$f(x) = 3x = 3 \cdot 0 = 0$

$f(x) = 27$

$f(x) = 2^x = 2^0 = 1$

$f(x) = 5^x = 5^0 = 1$

$f(x) = 11^x = 11^0 = 1$

$f(x) = \sqrt{x} = \sqrt{0} = 0$

$f(x) = x^5 = 0^5 = 0$

$f(x) = 7x - 11 + x^2 = 7 \cdot 0 - 11 + 0^2 = -11$

$f(x) = \dfrac{1}{x}$ Ej definierat. Division med 0 är inte tillåtet

**Beräkna $f(1)$ då**

$f(x) = x = 1$

$f(x) = x + 5 = 1 + 5 = 6$

$f(x) = x - 1 = 1 - 1 = 0$

$f(x) = 2x = 2 \cdot 1 = 2$

$f(x) = 3^x = 3^1 = 3$

$f(x) = 2,5^x = 2,5^1 = 2,5$

$f(x) = \sqrt{4x} = \sqrt{4 \cdot 1} = \sqrt{4} = 2$

$f(x) = 7x - 11 + x^2 = 7 \cdot 1 - 11 + 1^2 = 7 - 11 + 1 = 8 - 11 = -3$

$f(x) = \dfrac{1}{x} = \dfrac{1}{1} = 1$

**Beräkna $f(2)$ då**

$f(x) = x = 2$

$f(x) = x + 2 = 2 + 2 = 4$

$f(x) = x - 2 = 2 - 2 = 0$

$f(x) = 9x = 9 \cdot 2 = 18$

$f(x) = 42$

$f(x) = 2^x = 2^2 = 4$

$f(x) = 9^x = 9^2 = 81$

$f(x) = \sqrt{18x} = \sqrt{18 \cdot 2} = \sqrt{36} = 6$

$f(x) = x^2 + 2 = 2^2 + 2 = 4 + 2 = 6$

$f(x) = \dfrac{1}{x} = \dfrac{1}{2} = 0,5$

$f(x) = x + 1$ **beräkna**
$f(0) = 0 + 1 = 1$
$f(1) = 1 + 1 = 2$
$f(2) = 2 + 1 = 3$
$f(6) = 6 + 1 = 7$
$f(-1) = -1 + 1 = 0$
$f(-2) = -2 + 1 = -1$
$f(a) = a + 1$

$f(x) = 3x$ **beräkna**
$f(0) = 3 \cdot 0 = 0$
$f(1) = 3 \cdot 1 = 3$
$f(2) = 3 \cdot 2 = 6$
$f(5) = 3 \cdot 5 = 15$
$f(-1) = 3 \cdot (-1) = -3$
$f(-3) = 3 \cdot (-3) = -9$
$f(a) = 3 \cdot a = 3a$

$f(x) = \sqrt{x}$ **beräkna**
$f(0) = \sqrt{0} = 0$
$f(1) = \sqrt{1} = 1$
$f(4) = \sqrt{4} = 2$
$f(36) = \sqrt{36} = 6$
$f(0,25) = \sqrt{0,25} = 0,5$ $\qquad\qquad f(0,36) = \sqrt{0,36} = 0,6$

$f(x) = 2x - 1$ **beräkna**
$f(0) = 2 \cdot 0 - 1 = -1$
$f(1) = 2 \cdot 1 - 1 = 2 - 1 = 1$
$f(2) = 2 \cdot 2 - 1 = 4 - 1 = 3$
$f(5) = 2 \cdot 5 - 1 = 10 - 1 = 9$
$f(-1) = 2 \cdot (-1) - 1 = -2 - 1 = -3$
$f(-2) = 2 \cdot (-2) - 1 = -4 - 1 = -5$
$f(a) = 2 \cdot a - 1 = 2a - 1$

$f(x) = x^2$ **beräkna**
$f(1) = 1^2 = 1$
$f(2) = 2^2 = 4$
$f(5) = 5^2 = 25$
$f(-1) = (-1)^2 = 1$
$f(-2) = (-2)^2 = 4$
$f(-5) = (-5)^2 = 25$

$f(x) = x^2 + 2$ **beräkna**

$f(1) = 1^2 + 2 = 1 + 2 = 3$

$f(2) = 2^2 + 2 = 4 + 2 = 6$

$f(5) = 5^2 + 2 = 25 + 2 = 27$

$f(-1) = (-1)^2 + 2 = 1 + 2 = 3$ $\qquad$ $f(-2) = (-2)^2 + 2 = 4 + 2 = 6$

$f(x) = 2x - 1$ **beräkna**

$f(a) = 2a - 1$

$f(a^2) = 2a^2 - 1$

$f(a + 1) = 2(a + 1) - 1 = 2a + 2 - 1 = 2a + 1$

$f(a^2 + 1) = 2(a^2 + 1) - 1 = 2a^2 + 2 - 1 = 2a^2 + 1$

$f(1 + h) = 2(1 + h) - 1 = 2 + 2h - 1 = 2h + 1$

$f(a + h) = 2(a + h) - 1 = 2a + 2h - 1$

$f(1 + h) - f(1) = 2(1 + h) - 1 - (2 \cdot 1 - 1) = 2 + 2h - 1 - 2 + 1 = 2h$

$f(3 + h) - f(3) = 2(3 + h) - 1 - (2 \cdot 3 - 1) = 6 + 2h - 1 - 6 + 1 = 2h$

$f(x) = x^2$ **beräkna**

$f(a) = a^2$

$f(a^2) = (a^2)^2 = a^4$

$f(a + 1) = (a + 1)^2 = a^2 + 2a + 1$

$f(a^2 + 1) = (a^2 + 1)^2 = (a^2)^2 + 2 \cdot a^2 + 1 = a^4 + 2a^2 + 1$

$f(1 + h) = (1 + h)^2 = 1 + 2h + h^2$

$f(a + h) = (a + h)^2 = a^2 + 2ah + h^2$

$f(1 + h) - f(1) = (1 + h)^2 - (1^2) = 1 + 2h + h^2 - 1 = 2h + h^2$

$f(3 + h) - f(3) = (3 + h)^2 - (3^2) = 3^2 + 2 \cdot 3 \cdot h + h^2 - 9 = 9 + 6h + h^2 - 9 = 6h + h^2$

$f(x) = 2x + 1$ **och** $g(x) = x^2$ **beräkna**

$f(1) + g(1) = 2 \cdot 1 + 1 + 1^2 = 2 + 1 + 1 = 4$

$g(2) + f(2) = 2 \cdot 2 + 1 + 2^2 = 4 + 1 + 4 = 9$

$f(5) + g(3) = 2 \cdot 5 + 1 + 3^2 = 10 + 1 + 9 = 20$

$f(1) - g(1) = 2 \cdot 1 + 1 - (1^2) = 2 + 1 - 1 = 2$

$g(1) - f(1) = 1^2 - (2 \cdot 1 + 1) = 1 - 2 - 1 = 1 - 3 = -2$

$f(3) - g(2) = 2 \cdot 3 + 1 - (2^2) = 6 + 1 - 4 = 7 - 4 = 3$

$f(1) \cdot g(1) = (2 \cdot 1 + 1) \cdot (1^2) = (2 + 1) \cdot 1 = 3$

$f(0) \cdot g(3) = (2 \cdot 0 + 1) \cdot (3^2) = 1 \cdot 9 = 9$

$g(0) \cdot f(3) = (0^2) \cdot (2 \cdot 3 + 1) = 0 \cdot 7 = 0$

$f(g(1)) = f(1^2) = f(1) = 2 \cdot 1 + 1 = 2 + 1 = 3$

$g(f(1)) = g(2 \cdot 1 + 1) = g(3) = 3^2 = 9$

$f(g(0)) = f(0^2) = f(0) = 2 \cdot 0 + 1 = 1$

$g(f(0)) = g(2 \cdot 0 + 1) = g(1) = 1^2 = 1$