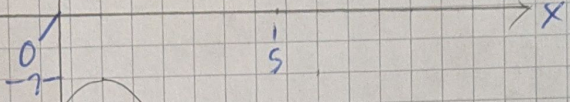


59 f(x)

c)

| | | | |
|------|----|------|----|
| x | -1 | 0 | 1 |
| f(x) | -3 | -1,5 | -1 |



58.

a) $f_3(x) = x^6$

| | | | | | |
|------|----|---|---|----|-----|
| x | -1 | 0 | 1 | 2 | 3 |
| f(x) | 1 | 0 | 1 | 64 | 729 |

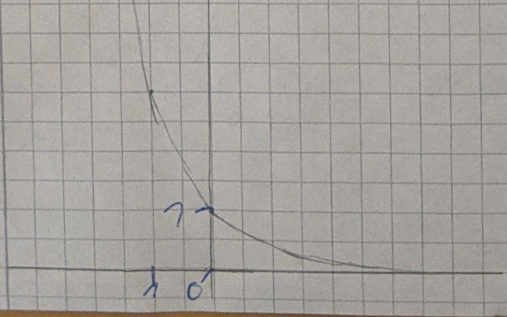
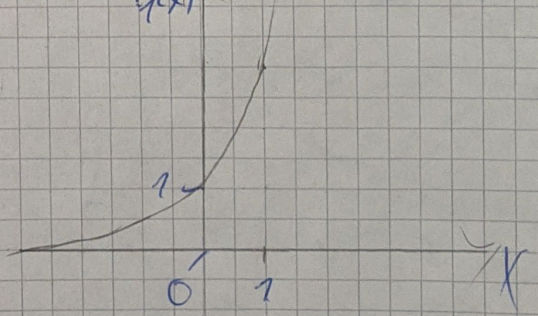
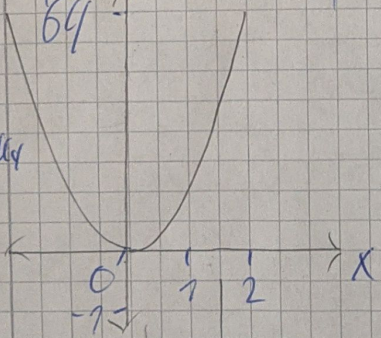
b) $f_1(x) = 3^x$

$f_2(x) = \left(\frac{1}{3}\right)^x$

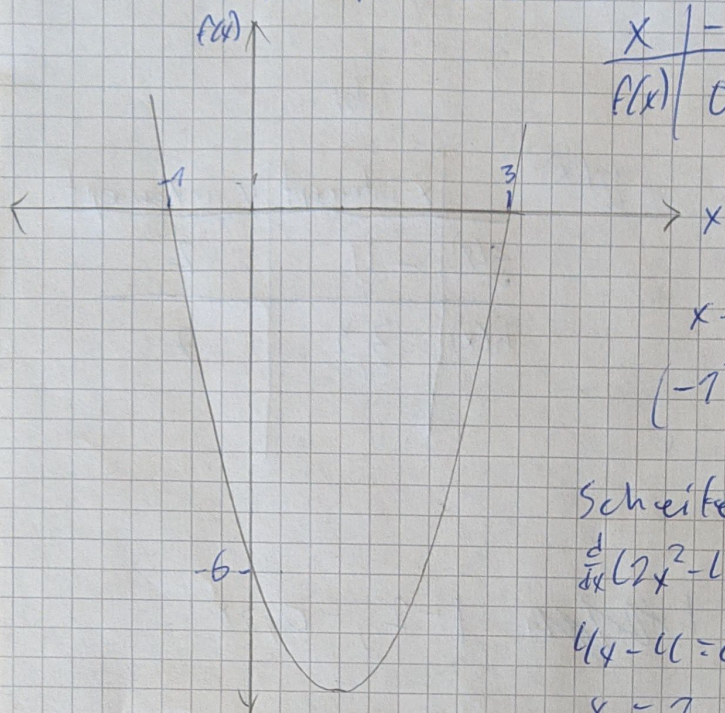
| | | | | | |
|------|-----|---|---|---|----|
| x | -1 | 0 | 1 | 2 | 3 |
| f(x) | 1/3 | 1 | 3 | 9 | 27 |

| | | | | | |
|------|----|---|-----|-----|------|
| x | -1 | 0 | 1 | 2 | 3 |
| f(x) | 3 | 1 | 1/3 | 1/9 | 1/27 |

y-axis grows exponentially



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



| x | -1 | 0 | 1 |
|------|----|----|----|
| f(x) | 0 | -6 | -8 |

x-intercept:

$$(-1), (3)$$

Scheitelpunkt:

$$\frac{d}{dx}(2x^2 - 4x - 6) = 4x - 4$$

$$4x - 4 = 0 \quad | +4; :4$$

$$x = 1$$

x in f(x)

$$2 \cdot 1^2 - 4 \cdot 1 - 6 = -8$$

$$S(1 | -8)$$

57. $S(1 | -1) \quad P(3 | -3)$

a)

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

$$-3 = a(3-1)^2 - 1$$

$$-3 = 4a - 1$$

$$-2 = 4a$$

$$a = -\frac{1}{2}$$

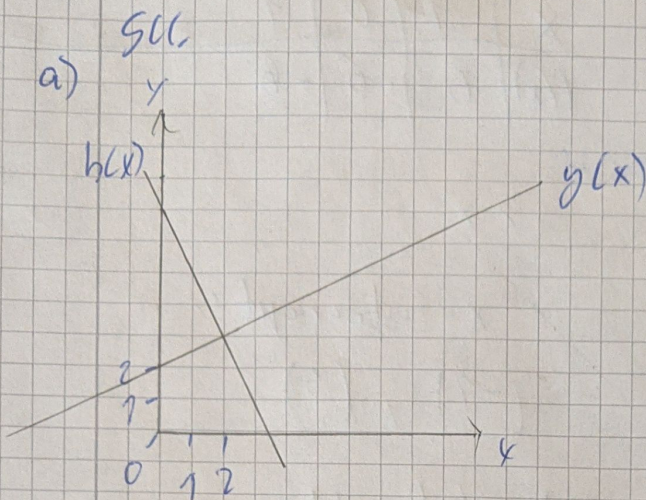
$$| +1$$

$$| :4$$

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

b) Sie ist nach unten geöffnet und befindet sich ~~oben~~ für reelle x werte komplett unter der x-Achse.

Functions



b)

| | x-intercept | y-intercept |
|--------|-------------|-------------|
| $g(x)$ | -1 | 2 |
| $h(x)$ | 3,5 | 7 |

c)

$$0,5x + 2 = -2x + 7 \quad | +2x \quad | -2 \quad | -0,5x$$

$$0 = -2,5x + 5$$

$$1 + 2,5x \quad | -2,5x \quad | :2,5$$

$$x = 2$$

$$\left(\begin{array}{l} x \text{ in } g(x) \\ 0,5 \cdot 2 + 2 = 3 \end{array} \right.$$

SS.

a) $P(-3|2)$ und $Q(5|3)$

$$\text{slope: } \frac{3-2}{5-(-3)} = \frac{1}{8}$$

$$f(x) = \frac{1}{8}(x+3) + 2$$

$$f(x) = \frac{1}{8}x + \frac{17}{8}$$

b)

x intercept: 0,2

y intercept: ~~1~~ $-\frac{1}{8}$

c)

$$g(x) = \frac{1}{8}x$$

d) R ~~X~~ SV