1. Aufgabe:

①

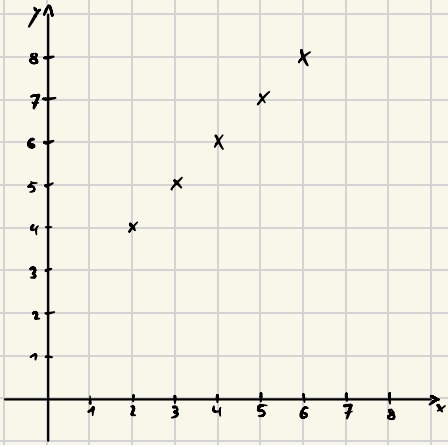
a) $\bar{x} = \frac{1}{5} \times (2+3+4+5+6) = \frac{1}{5} \times 20 = 4$

$\bar{y} = \frac{1}{5} \times (4+5+6+7+8) = \frac{1}{5} \times 30 = 6$

$\rightarrow r = \frac{(2-4)\times(4-6)+(3-4)\times(5-6)+(4-4)\times(6-6)+(5-4)\times(7-6)+(6-4)\times(8-6)}{\sqrt{((2-4)^2+(3-4)^2+(4-4)^2+(5-4)^2+(6-4)^2)\times((4-6)^2+(5-6)^2+(6-6)^2+(7-6)^2+(8-6)^2)}}$

$= \frac{-2\times(-2)+(-1)\times(-1)+0\times0+1\times1+2\times2}{\sqrt{(4+1+0+1+4)\times(4+1+0+1+4)}} = \frac{10}{\sqrt{100}} = \frac{10}{10} = 1$

b)



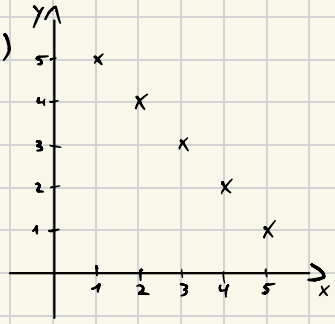
②

a) $\bar{x} = \frac{1}{5}(1+2+3+4+5) = \frac{1}{5} \times 15 = 3$

$\bar{y} = \frac{1}{5}(5+4+3+2+1) = \frac{1}{5} \times 15 = 3$

$\rightarrow r = \frac{(-2)\times2+(-1)\times1+0\times0+1\times(-1)+2\times(-2)}{\sqrt{(4+1+0+1+4)\times(4+1+0+1+4)}} = \frac{-10}{\sqrt{100}} = \frac{-10}{10} = -1$

b)



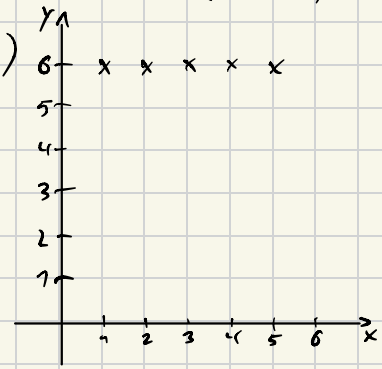
(3)

a) $\bar{x} = \frac{1}{5}(1+2+3+4+5) = \frac{1}{5} \times 15 = 3$

$\bar{y} = \frac{1}{5}(6+6+6+6+6) = \frac{1}{5} \times 30 = 6$

$\rightarrow r = \frac{(-2)\times 0 + (-1)\times 0 + 0 \times 0 + 1 \times 0 + 2 \times 0}{\sqrt{(4+1+0+1+4) \times (0+0+0+0+0)}} = \frac{0}{0} = 0$

b)



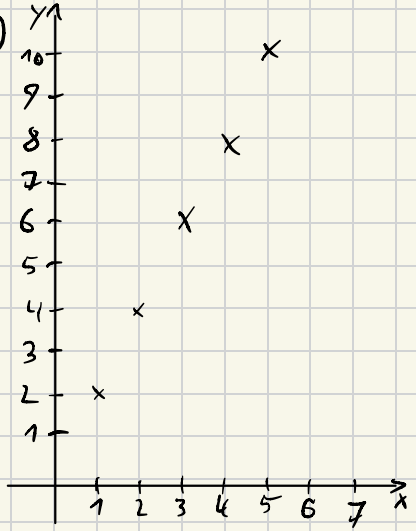
(4)

a) $\bar{x} = \frac{1}{5}(1+2+3+4+5) = \frac{1}{5} \times 15 = 3$

$\bar{y} = \frac{1}{5}(2+4+6+8+10) = \frac{1}{5} \times 30 = 6$

$\rightarrow r = \frac{(-2)\times(-4) + (-1)\times(-2) + 0 \times 0 + 1 \times 2 + 2 \times 4}{\sqrt{(4+1+0+1+4) \times (16+4+0+4+16)}} = \frac{20}{\sqrt{400}} = \frac{20}{20} = 1$

b)



Aufgabe 2:

① a) $\bar{x} = \frac{1}{5}(1+2+3+4+5) = \frac{1}{5} \times 15 = 3$

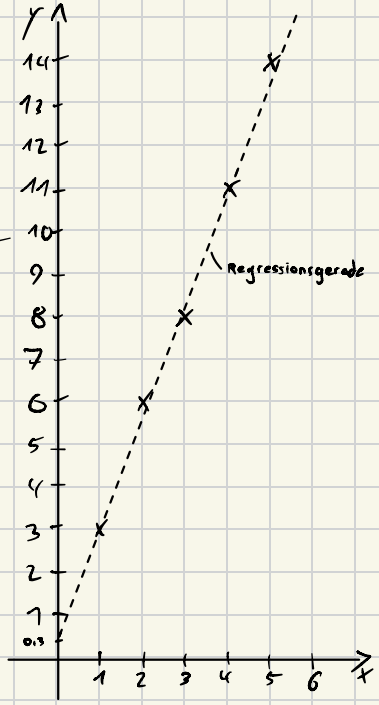
$\bar{y} = \frac{1}{5}(3+6+8+11+14) = \frac{1}{5} \times 42 = 8{,}4$

$m = \frac{(-2)\times(-5{,}4) + (-1)\times(-2{,}4) + 0\times(-0{,}4) + 1\times 2{,}6 + 2\times 5{,}6}{4+1+0+1+4} = \frac{27}{10} = 2{,}7$

$b = 8{,}4 - 2{,}7 \times 3 = 0{,}3$

→ $\boxed{y = 2{,}7x + 0{,}3}$

b)



② a) $\bar{x} = \frac{1}{5}(2+3+4+5+6) = \frac{1}{5} \times 20 = 4$

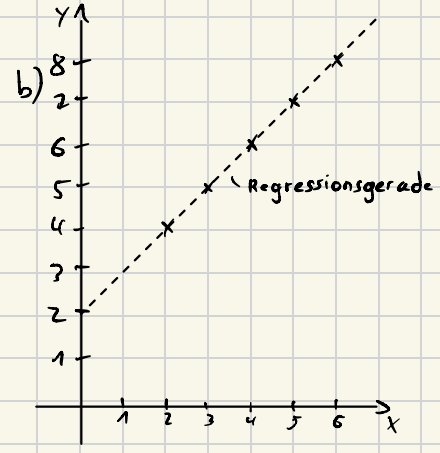
$\bar{y} = \frac{1}{5}(4+5+6+7+8) = \frac{1}{5} \times 30 = 6$

$m = \frac{(-2)\times(-2) + (-1)\times(-1) + 0\times 0 + 1\times 1 + 2\times 2}{4+1+0+1+4} = \frac{10}{10} = 1$

$b = 6 - 1 \times 4 = 2$

→ $\boxed{y = 1x + 2}$

b)



③

a) $\bar{x} = \frac{1}{5}(2+3+4+5+6) = \frac{1}{5} \times 20 = 4$

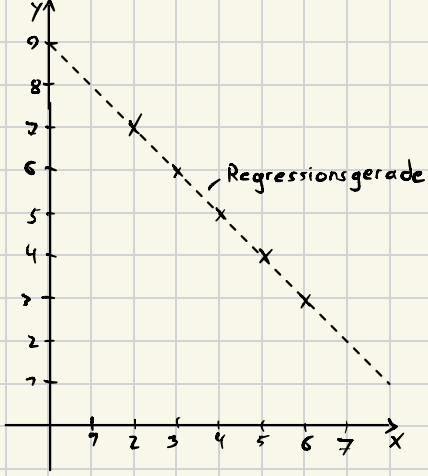
$\bar{y} = \frac{1}{5}(7+6+5+4+3) = \frac{1}{5} \times 25 = 5$

$m = \frac{(-2)\times 2 + (-1)\times 1 + 0\times 0 + 1\times(-1) + 2\times(-2)}{4+1+0+1+4} = \frac{-10}{10} = -1$

$b = 5 - (-1)\times 4 = 9$

$\rightarrow$ $\boxed{y = -1x + 9}$

b)



④

a) $\bar{x} = \frac{1}{5}(1+2+3+4+5) = \frac{1}{5} \times 15 = 3$

$\bar{y} = \frac{1}{5}(2+4+6+8+10) = \frac{1}{5} \times 30 = 6$

$m = \frac{(-2)\times(-4) + (-1)\times(-2) + 0\times 0 + 1\times 2 + 2\times 4}{4+1+0+1+4} = \frac{20}{10} = 2$

$b = 6 - 2\times 3 = 0$

$\rightarrow$ $\boxed{y = 2x + 0}$

b)