

Naam student: _____
 Leerjaar: _____
 Klas: Bo Bb
 Nummer toets volgens OER: _____
 Datum: _____

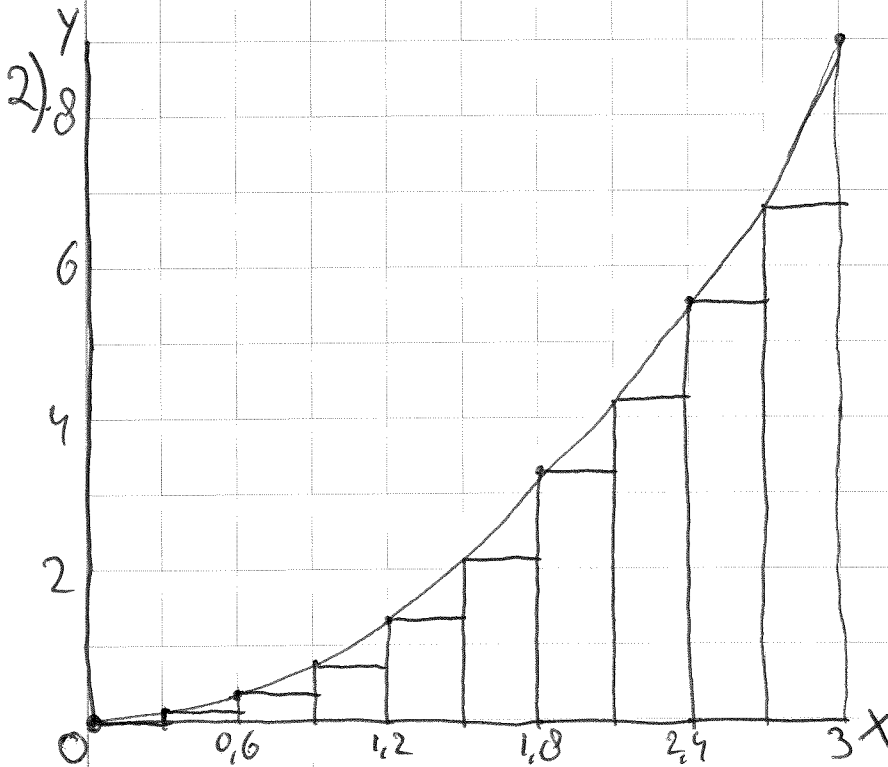
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Workshop Integreeren

1a. $\sum_{i=1}^4 (i+1)^2 = (1+1)^2 + (2+1)^2 + (3+1)^2 + (4+1)^2 = 2^2 + 3^2 + 4^2 + 5^2 = 54$

b. $\sum_{k=1}^4 (4k-2) = (4 \cdot 1 - 2) + (4 \cdot 2 - 2) + (4 \cdot 3 - 2) + (4 \cdot 4 - 2) = 2 + 6 + 10 + 14 = 32$

c. $\sum_{x=1}^5 (2x) = (2 \cdot 1) + (2 \cdot 2) + (2 \cdot 3) + (2 \cdot 4) + (2 \cdot 5) = 30$

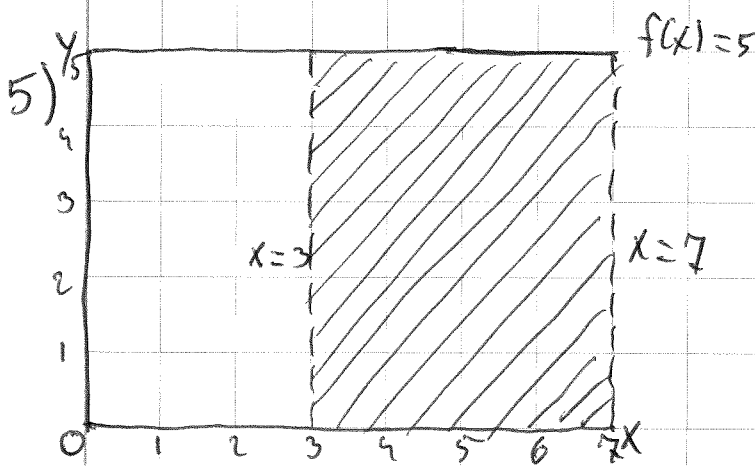


$\sum_{i=0}^9 (0,3x)^2 = (0,3 \cdot 0)^2 + (0,3 \cdot 1)^2 + (0,3 \cdot 2)^2 + (0,3 \cdot 3)^2 + (0,3 \cdot 4)^2 + (0,3 \cdot 5)^2 + (0,3 \cdot 6)^2 + (0,3 \cdot 7)^2 + (0,3 \cdot 8)^2 + (0,3 \cdot 9)^2 = 25,65$

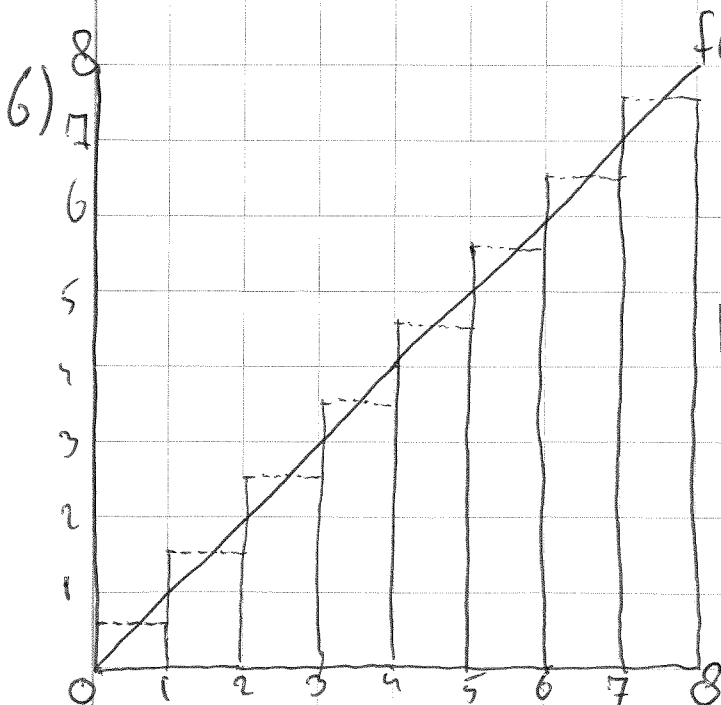
- 3) a. $f(x) = 4x^3$ $F(x) = x^4 + C$
 b. $f(x) = 3x^5$ $F(x) = \frac{1}{2}x^6 + C$
 c. $f(x) = x^{\frac{1}{2}}$ $F(x) = \frac{1}{\frac{1}{2}}x^{\frac{1}{2}+1} + C = \frac{2}{3}x^{\frac{3}{2}} + C$
 d. $f(x) = 13x^2 - 7x^3$ $F(x) = \frac{13}{3}x^3 - \frac{7}{4}x^4 + C = 4\frac{1}{3}x^3 - 1\frac{3}{4}x^4 + C$
 e. $f(x) = \sin(x)$ $F(x) = -\cos(x) + C$
 f. $f(x) = \cos(2x)$ $F(x) = \frac{1}{2}\sin(2x) + C$

4). tekening zie opgave 2.

$$\int_a^b (f(x) - g(x)) dx = \int_0^3 (x^2 - 0) dx = \int_0^3 x^2 dx = \left[\frac{1}{3}x^3 \right]_{x=0}^{x=3} = \frac{1}{3} \cdot 3^3 - \frac{1}{3} \cdot 0^3 = 9$$



$$\int_a^b (f(x) - g(x)) dx = \int_3^7 (5 - 0) dx = \int_3^7 5 dx = \left[5x \right]_{x=3}^{x=7} = 5 \cdot 7 - 5 \cdot 3 = 20$$



a) $\sum_{i=1}^8 (i - 0) = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36$ te veel! verkeerde blokje!

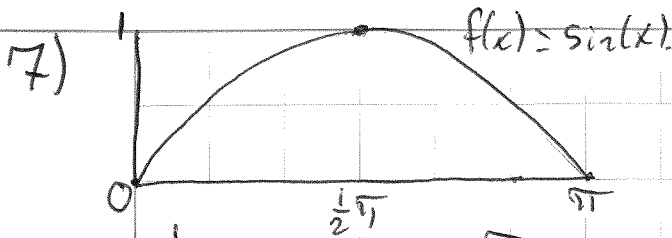
b) $\int_a^b (f(x) - g(x)) dx = \int_0^8 (x - 0) dx = \int_0^8 x dx = \left[\frac{1}{2}x^2 \right]_{x=0}^{x=8} = \frac{1}{2} \cdot 8^2 - \frac{1}{2} \cdot 0^2 = 32$

a) $\sum_{i=1}^8 (i - \frac{1}{2}) = \frac{1}{2} + 1\frac{1}{2} + 2\frac{1}{2} + 3\frac{1}{2} + 4\frac{1}{2} + 5\frac{1}{2} + 6\frac{1}{2} + 7\frac{1}{2} = 32$

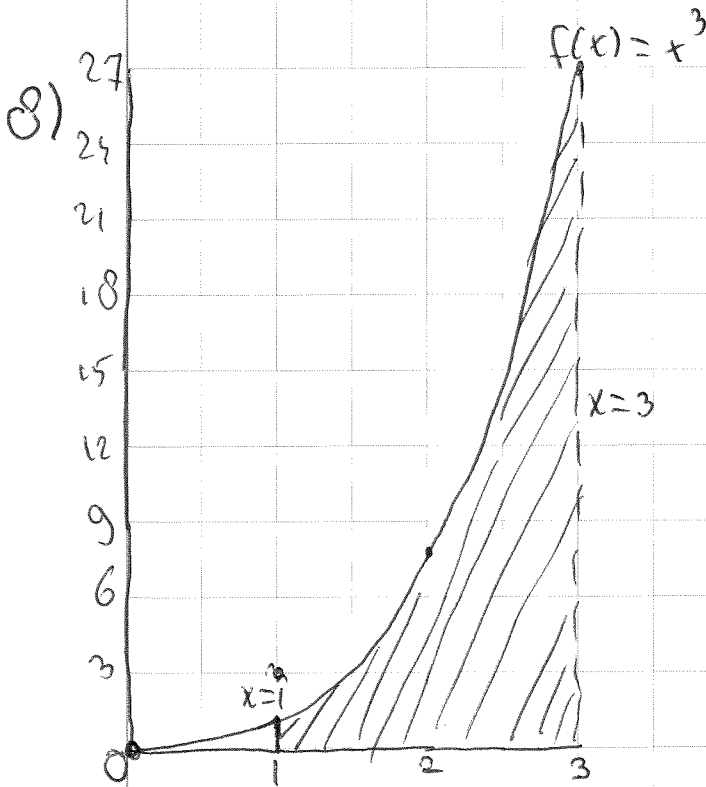
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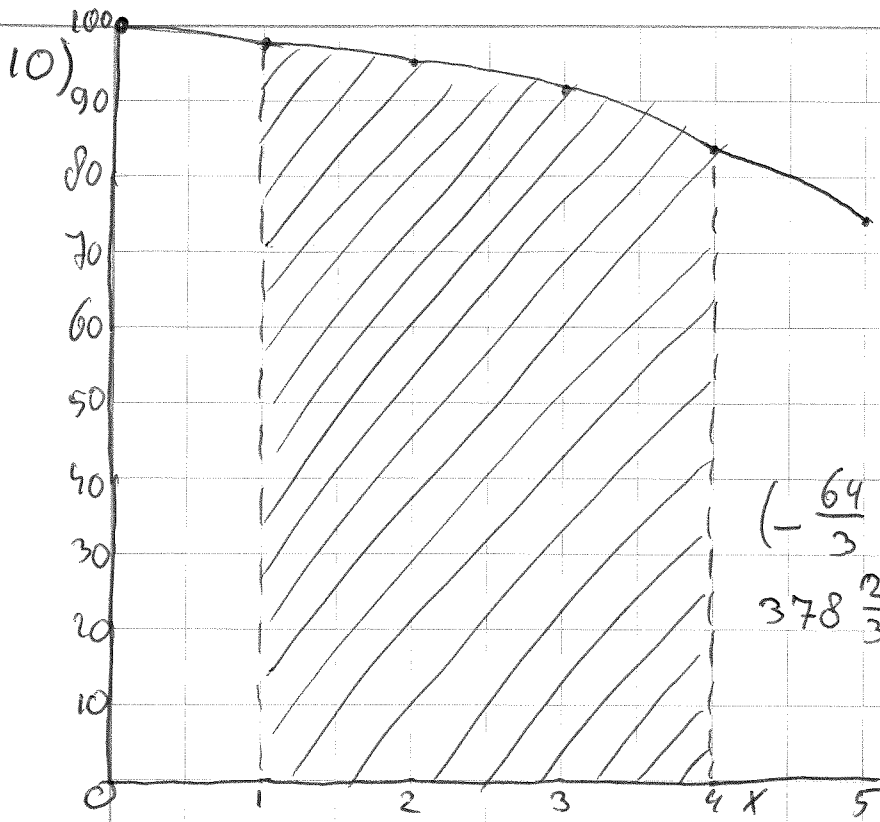
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$$\int_a^b (f(x) - g(x)) dx = \int_0^{\pi} (\sin(x) - 0) dx = \int_0^{\pi} \sin(x) dx = [-\cos(x)]_0^{\pi} = -\cos(\pi) - (-\cos(0)) = 1 - (-1) = 2$$



$$\int_a^b (f(x) - g(x)) dx = \int_1^3 (x^3 - 0) dx = \int_1^3 x^3 dx = \left[\frac{1}{4} x^4 \right]_{x=1}^{x=3} = \left(\frac{1}{4} \cdot 3^4 \right) - \left(\frac{1}{4} \cdot 1^4 \right) = 20 \frac{1}{4} - \frac{1}{4} = 20$$



$$\int_a^b (f(x) - g(x)) dx = \int_1^4 (-x^2 + 100 - 0) dx =$$

$$\int_1^4 (-x^2 + 100) dx = \left[-\frac{1}{3}x^3 + 100x \right]_{x=1}^{x=4}$$

$$\left(-\frac{64}{3} + 100 \cdot 4 \right) - \left(-\frac{1}{3} + 100 \cdot 1 \right) =$$

$$378 \frac{2}{3} - 99 \frac{2}{3} = 279$$

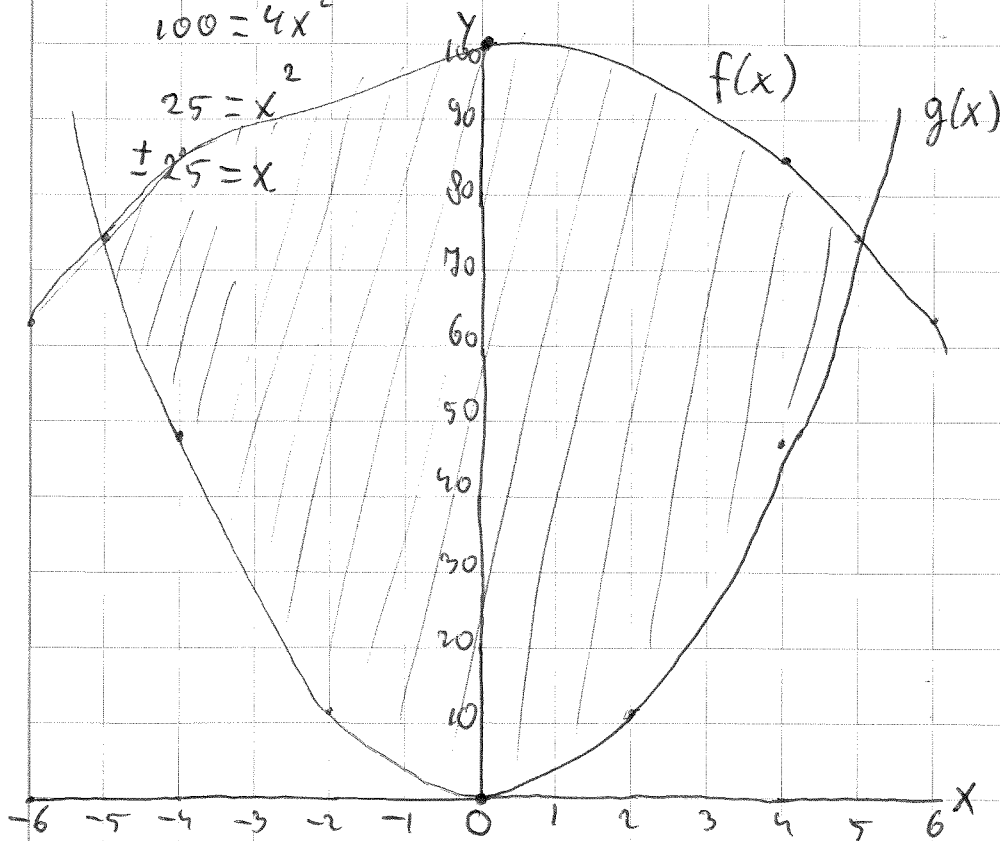
11) $f(x) = g(x)$

$$-x^2 + 100 = 3x^2$$

$$100 = 4x^2$$

$$25 = x^2$$

$$\pm 25 = x$$



$$\int_a^b (f(x) - g(x)) dx = \int_{-5}^5 (-x^2 + 100 - 3x^2) dx = \int_{-5}^5 (-4x^2 + 100) dx = \left[-\frac{4}{3}x^3 + 100x \right]_{x=-5}^{x=5}$$

$$\left(-\frac{500}{3} + 500 \right) - \left(\frac{500}{3} - 500 \right) = -\frac{500}{3} + 500 - \frac{500}{3} + 500 = 1000 - 333 \frac{1}{3} = 666 \frac{2}{3}$$