Ülesanne 2

a) $p = 0.6\% = 0.006$ $K = 5000$

$5000 \times 0.006 = 30$ 1. aasta intress $5000 + 30 = 5030$

$5000 + 5000 \times 0.006 = 5030$ $5000 \cdot (1 + 0.006)$

1. aasta intress $5030 + 5030 \cdot 0.006 = 5030 \cdot (1 + 0.006) = 5000 \cdot (1 + 0.006)(1 + 0.006)$

$$5000 \cdot \left(1 + \frac{0.6\%}{100}\right)^2 = 5000 \cdot (1 + 0.006)^2 = 5060.18$$

b) $(p2 = 0.6\%)10 = 6\% = 0.06$

$$S = A \cdot \left(1 + \frac{p\%}{100}\right)^n$$

$A := 5000$

$p := 6$

$n := 2$

$$S := A \cdot \left(1 + \frac{p}{100}\right)^n = 5.618 \times 10^3$$

$$5.618 \times 10^3 - 5060.18 = 557.82$$

Ülesanne 3

$(\cos(x))^2 + (\sin(x))^2 = 1$ => $1 - (\sin(x))^2 = (\cos(x))^2$

$\sin(90 - x) = \cos(x)$ $\frac{(\cos(x))^2}{\cos(x)} = \cos(x)$

$y = f(x) = \cos(x)$ $A(m, 0.5)$

$f(m) = \cos(m) = 0.5$ $\arcsin(\sin(x) = x)$

$\arccos(\cos(m)) = \arccos(0.5)$ $\cos^{-1}$

$$m = \arccos\left(\frac{1}{2}\right) = \cos^{-1}(0.5) = 60$$

$\frac{\sqrt{3}}{2}$

180* - π rad

60* - x rad $x = \frac{60 \cdot \pi}{180} = \frac{\pi}{3}$ rad $A(60, 0.5)$

Ülesanne 4

$(x(x+1) < 4\cdot(1+x) \qquad 2 < -4$

$x^2 + x < 4 + 4x$

$x^2 - 3x - 4 < 0$

$x^2 - 3x - 4 = 0 \qquad (x - \blacksquare)(x - \blacksquare)$

$m := \frac{-(-3)}{2} = 1.5$

$d := \sqrt{m^2 - (-4)} = 2.5$

$x1 := m + d = 4 \qquad x2 := m - d = -1$

$(x - 4)(x + 1) < 0$

$x - 4 < 0 \wedge x + 1 < 0$

$x < 4 \qquad x < -1$

Ülesanne 5

1) 6 inimest

2) 15

3) $\frac{1}{24} = 0.042$

4) $\frac{1}{16} = 0.063$

Ülesanne 6

$f(x) := \left(x^3 - 3x^2\right)$

$\frac{d}{dx}\left(f(x) = 3x^2 - 6x\right)$

$3x^2 - 6x = 0$

$x1 = 0 \qquad x2 = 2$

$\frac{d^2}{dx^2}\left[f(x) = \frac{d}{dx}\left(3x^2 - 6x\right)\right] = 6x - 6$

$\frac{d^2}{dx^2}[(f(2) = 6\cdot 2 - 6) = 6 > 0] \qquad \min \qquad \frac{d^2}{dx^2}[(f(0) = 6\cdot 0 - 6) = -6 < 0] \qquad \max$

Miinimupunkti koordinaadid

$f(2) = 2^3 - 3 \times 2^2 = -4$

Puutuja

$y := \left(3^3 - 6 \cdot 3\right) = 9$

$y = 3^3 - 3 \times 3^2 + \left(3 \times 3^2 - 6 \times 3\right)(x - 3)$

$y = 9 \cdot (x - 3) = 9x - 27$

$k = 9$

ülesanne 7

$$a := \frac{1860 + 220 + 40}{2} = 1.06 \times 10^3$$

Siinusteoreem

$$\frac{x}{\sin(\beta)} = \frac{1860}{\sin(88.9)} = \frac{1520}{\sin(\alpha)}$$

$180 - 88.9 - \alpha = \beta$

$$\frac{1520 \cdot \sin(1.551597705022959)}{1860} = 0.817$$

$\sin(\alpha) = 0.817$

$\alpha := \operatorname{asin}(0.817) = 0.956$

$$0.956 \cdot \frac{180}{\pi} = 54.775$$

$180 - 88.9 - 54.775 = 36.325$

$$\frac{x}{\sin(36.325)} = \frac{1860}{\sin(88.9)} = \frac{1520}{\sin(54.775)}$$

$$x := \frac{1860 \cdot \sin(0.6339908507869403)}{\sin(1.551597705022959)} = 1.102 \times 10^3$$

~1100 km