

Atöette 11 ö. 51 p.

Wagnerok.

Magyar Lottán

menyiségteni

érettégi dolgozata.

Egy valószínűleg elmaradott
háza van benne.

Jéles
László

HELYTÖRTÉNET

Kézirat



REV. 2017.

2001



Magyar Zoltán
 mennyiségtani érettségi dolgozata.

1.) Egy 5%-es adósság törlesztésére hűsz éven át minden év végén 25000 K-t kell fizetni. Mekkora lesz egy annuitás, ha az adósságot 4%-esre konvertáljuk és a visszafizetéseket 20 éven át félevenként eszközöljük.

$$A = a \frac{t^m - 1}{t^m(t-1)}$$

$$\log t^m = 20 \log 105 = 0.02119.20$$

$$t^m = N \log 0.4238 = 2.63256$$

En nem pontos

$$\log A = \log a = 4.39794$$

$$\log(t^m - 1) = 0.21285$$

$$4.61079$$

$$-0.12277 = 1$$

$$\log t^m = 0.42380$$

$$\log(t-1) = 0.69897 - 2$$

$$0.12277 - 1$$

$$A = N \log 5.48802 = 304621.42 \text{ K}$$

$$At^m = a \frac{t^m - 1}{t-1}$$

$$\log t^m = 40 \log 1.02 = 0.00860.40$$

$$t^m = N \log 0.34400 = 2.20800$$

$$a = \frac{At^m(t-1)}{t^m - 1}$$

$$(t^m - 1) = 1.20800$$

$$\log a = \log A = 5.48802$$

$$\log t^m = 0.34400$$

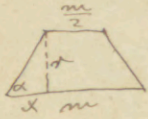
$$\log(t-1) = 0.30103 - 2$$

$$4.13305$$

$$- \log(t^m - 1) = 0.08207$$

$$a = N \log 4.05098 = 11245.52 \text{ K}$$

2.) Egy egyenlőszárú trapéz kisebbik párhuzamos oldala a nagyobbiknak a fele. Magassága 5.3 m, és egyik szöge, $\alpha = 54^\circ 36' 24''$. Mily nagy annak a forgási testnek a köbtartalma, melyet nyerünk, ha a trapézt a kisebbik párhuzamos oldala körül megforgatjuk.



$$x = r \operatorname{ctg} \alpha$$

$$\log x = \log r = 0.72428$$

$$\log \operatorname{ctg} \alpha = \frac{9.85156 - 10}{1}$$

$$x = N \log 0.57584 = 3.7656 \text{ m.}$$

$$m = 4x = 3.7656 \cdot 4 = 15.0624 \text{ m}$$

$$a = r^2 \pi$$

$$\log a = 2 \log r = 1.44856$$

$$\log r = 0.49715$$

$$a = N \log 1.94571 = 88.25 \text{ m}^2$$

$$K = a \cdot m = 88.25 \cdot 15.06$$

$$\log K = \log a = 1.94571$$

$$\log m = 1.17782$$

$$K = N \log 3.12353 = 1329.03 \text{ m}^3$$

$$k = \frac{a \cdot x}{3}$$

$$\log k = \log a = 1.94571$$

$$\log x = 0.57584$$

$$2.52155$$

$$-\log 3 = 0.47712$$

$$k = N \log 2.04443 = 110.77$$

$$k = K - 2k = 1329.03 \text{ m}^3$$

$$- 221.54 \text{ m}^3$$

$$k = \underline{\underline{1107.49 \text{ m}^3}}$$

Másféle kidolgozási mód:

$$K = a \cdot m = 4r^3 \pi \operatorname{ctg} \alpha$$

$$2k = \frac{2r^3 \pi \operatorname{ctg} \alpha}{3}$$

$$k = K - 2k = \frac{10r^3 \pi \operatorname{ctg} \alpha}{3}$$

$$\log k = \log 10 = 1.00000$$

$$3 \log r = 2.17284$$

$$\log r = 0.49715$$

$$\log \operatorname{ctg} \alpha = \frac{9.85156 - 10}{1}$$

$$3.52155$$

$$-\log 3 = 0.47712$$

$$k = N \log 3.04443 = \underline{\underline{1107.7 \text{ m}^3}}$$



Magyar Zoltán

menyiségtani érettségi dolgozata

1, Egy 5% adósság törlesztésére hűss éven át minden év végén 25000 K-t kell fizetni. Mekkora lesz egy annuitás, ha az adósságot 2% -ra konvertáljuk és a visszafizetéseket 20 éven át felévenként eszközöljük.

$$A = \frac{at^n - 1}{t^n(t-1)}$$

$$\log A = \log a = \frac{4.39794}{0.07950} = \frac{4.47744}{0.94266-2}$$

$$A = N \log 5.53478 = 342592.3 \text{ K}$$

$$\log t^n = n \log t = 20 \log 1.04 = 0.01703 \cdot 20$$

$$t^n = N \log 0.3406 = 2.2009$$

$$(t^n - 1) = 1.2009$$

$$\log(t^n - 1) = \log 1.2009 = 0.07950$$

$$\log t^n = 0.34060$$

$$\log(t-1) = 0.60206 - 2$$

$$(t-1) = 0.04$$

$$At^n = a \frac{t^n - 1}{t - 1}$$

$$a = \frac{At^n(t-1)}{t^n - 1}$$

$$\log a = \log A = \log 342592.3 = 5.53478$$

$$\log t^n = 0.34060$$

$$\log(t-1) = 0.30103 - 2$$

$$- \log(t^n - 1) = -0.08207$$

$$a = N \log 5.96174 = 12524 \text{ K}$$

$$\log t^n = n \log t = 40 \log 1.02 = 0.0860 \cdot 40$$

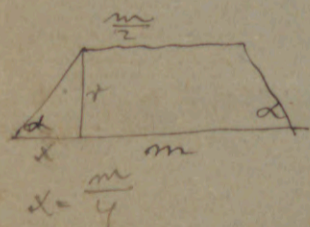
$$t^n = N \log 0.34400 = 2.20800$$

$$(t^n - 1) = 1.208$$

$$\log(t^n - 1) = \log 1.208 = 0.08207$$

$$\log(t-1) = \log 0.02 = 0. (t-1) = 0.02$$

2, Egy egyenlőszárú trapéz kisebbik párhuzamos oldala a nagyobbiknak fele. Magassága 5.3m, és egyik szöge $\alpha = 54^\circ 36' 24''$. Mily nagy annak a forgási testnek a köbtartalmát, melyet nyerünk, ha a trapézt a kisebbik párhuzamos oldala körül megforgatjuk.



$$x = r \cdot \cot \alpha$$

$$\log x = \log 5.3 = 0.72428$$

$$\log \cot 54^\circ 36' 24'' = 9.85156 - 10$$

$$x = N \log 0.57584 = 3.7656 \text{ m}$$

$$m = 4x = 3.7656 \cdot 4 = 15.0624$$

$$a = r^2 \pi$$

$$\log a = 2 \log 5.3 = 1.44856$$

$$\log \pi = 0.49715$$

$$a = N \log 1.94571 = 88.25 \text{ m}^2$$

$$K = a \cdot m =$$

$$\bar{K} = a \cdot m = 88.25 \cdot 15.06$$

$$\log K = \log a = 1.94571$$

$$\log m = 1.17782$$

$$K = N \log 3.12353 = 1329.03 m^3$$

$$K = a \cdot \frac{m}{4}$$

$$\log K = 3 \log a = 1.94571$$

$$\log \frac{m}{4} = 0.57584$$

$$K = N \log 2.58155 = 332.315 m^3 = 110.774$$

$$K = \bar{K} - 2K = 1329.03 - 664.64 = 664.39 m^3$$

$$K = \frac{1329.03}{3} - 224.54 = 1107.49 m^3$$

~~$$K = 4r^3 \cot^2 \alpha$$~~

~~$$\bar{K} =$$~~

~~$$\log K = \log a = 1.94571$$~~

~~$$\log x = 0.57584$$~~

~~$$2.52155$$~~

~~$$- \log 3 = 0.47712$$~~

~~$$K = N \log 2.04443 = 110.7$$~~

~~$$K = 4r^3 \cot^2 \alpha$$~~

~~$$- 2r^3 \cot^2 \alpha$$~~

~~$$K = (4r - 2r) \cot^2 \alpha$$~~

~~$$\log K = \log 2 = 0.30103$$~~

~~$$3 \log r = 2.17284$$~~

~~$$\log r =$$~~

~~$$r, a = r^2 \pi, m = 4 + r \cot \alpha, x = r \cot \alpha$$~~

~~$$K = 4r^3 \cot^2 \alpha$$~~

~~$$2K = 2r^3 \cot^2 \alpha$$~~

~~$$K = \bar{K} - 2K = 10 + 3\pi \cot^2 \alpha$$~~

~~$$\log K = \log 10 = 1.00000$$~~

~~$$3 \log r = 2.17284$$~~

~~$$\log r = 0.72428$$~~

~~$$\log \cot^2 \alpha = 9.85156 - 10$$~~

~~$$3.52155$$~~

~~$$- \log 3 = 0.47712$$~~

~~$$K = N \log 3.04443 = 1107.7 m^3$$~~

~~$$4r^3 \cot^2 \alpha$$~~

~~$$4r^3 \cot^2 \alpha$$~~

~~$$3$$~~

~~$$0.72428.3$$~~

~~$$2.7284$$~~

$$A = a \frac{t^n - 1}{t^n(t-1)}$$

$$\begin{aligned} \log A &= \log a = 4.39794 \\ \log t^n - 1 &= 0.21285 \\ \hline &4.61079 \\ - 0.12277 &= K \end{aligned}$$

$$A = N \log 5.48802 = 307627.42 K$$

$$\log t^n = n \log t = 20 \log 1.05 = \frac{0.02119 \cdot 20}{t^n = N \log 0.4238 = 2.63256}$$

$$\begin{aligned} (t^n - 1) &= 1.63256 \\ \log(t^n - 1) &= \log 1.63256 = 0.21285 \\ \log t^n &= 0.42380 \quad (t-1) = 0.05 \\ \log(t-1) &= 0.69897 - 2 \\ \hline &0.12277 - 2 \end{aligned}$$

$$At^n = a \frac{t^n - 1}{t - 1}$$

$$a = \frac{At^n(t-1)}{t^n - 1}$$

$$\begin{aligned} \log a &= \log A = 5.88802 \\ \log t^n &= 0.34400 \\ \log(t-1) &= 0.30203 - 2 \\ \hline &4.13305 \end{aligned}$$

$$- \log(t^n - 1) = 0.08207$$

$$a = N \log 4.05098 = 11245.52 K$$

$$\log t^n = n \log t = 40 \log 1.02 = 0.00860 \cdot 40$$

$$t^n = N \log 0.34400 = 2.20800$$

$$\begin{aligned} (t^n - 1) &= 1.20800 \\ \log(t^n - 1) &= \log 1.208 = 0.08207 \end{aligned}$$

Bemutath 9°53'

Urin