EXPONENTIAL IN SOLVING EXPONENTIAL EQUATIONS USING THE FUNCTION PROPERTY
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ANNOTATION

The establishment of interaction, dependence and consistency among the types of education is carried out on the basis of ensuring continuity between disciplines, chapters, topics, educational materials.

Shunday ekan matematika fani asoslarini yorituvchi kurslar o'rtasida uzviylikni ta'minlash, o'quv materiallarini turli bosqich ta'lim muassasalari o'quvchilarining yosh xususiyatlariga mos holda tanlash, ularning muayyan mantiqiy ketma-ketlik, fanlararo uzviylik hamda izchillik asosida joylashtirish, o'quv jarayonida uzviylik tamoyilining yetakchi o'rin tutishiga erishish va bu holatni pedagogik jihatdan asoslash muammosini yuzaga keltiradi. Elementar matematikaning shunday misol va masalalar sinfi mavjudki, ularni yechish uchun mavjud bilim va ko'nikmalar yetarli bo'lmaydi, ya'ni ularni an'anaviy usulda yechib bo'lmaydi. Bunday muammolarni yechishda matematik tahlil elementlarini qo'llash muhim ahamiyat kasb etadi.

Agar $f(x)$ funksiya biror J oraliqda o'suvchi, $g(x)$ funksiya esa bu oraliqda kamayuvchi bo'lsa, u holda $f(x) = g(x)$ tenglama bu oraliqda bittadan ortiq bo'lmagan ildizga ega bo'ladi. Agar $f(x)$ funksiya biror J oraliqda kamayuvchi (o'suvchi) bo'lsa, u holda $f(x) = 0$ tenglama bu oraliqda bittadan ortiq bo'lmagan ildizga ega bo'ladi.

1-misol. Ushbu

$$3^x + 4^x = 5^x$$

tenglamani yeching.

Yechish. Tenglamaning har ikki qismini 5^x ga bo'lamiz va

$$\left(\frac{3}{5}\right)^x + \left(\frac{4}{5}\right)^x = 1$$

tenglamani hosil qilamiz. Tenglamaning chap qismi R da kamayuvchi, chunki chap qismida ikkita kamayuvchi funksiyalar yig'indisi turibdi. Shuning uchun tenglama bittadan ortiq bo'lmagan ildizga ega. Bu $x = 2$ dir.

Javob: 2

2-misol. Ushbu

$$\left(\sqrt{5 + \sqrt{2}}\right)^x + \left(\sqrt{5 - \sqrt{2}}\right)^x = 10$$

tenglamani yeching.

Yechish. Tenglamaning chap qismi R da o'suvchi funksiya bo'lganligi uchun tenglama bittadan ortiq bo'lmagan ildizga ega. Tanlash yo'li bilan $x = 2$ ni topamiz.

Javob: 2

3-misol. Ushbu

$$2 \cdot 36^x + 3 \cdot 6^x = 90$$

tenglamani yeching.

Yechish. Tenglamaning chap qismi ikkita o'suvchi funksiyalar yig'indisidan iborat. Tenglama bitta ildizga ega yoki ildizga ega emas. $x = 1$ ekanligini oson ko'rish mumkin.

Javob:1

4-misol. Ushbu

$$3 \cdot 2^x + 2 \cdot 3^x = \left(\frac{1}{2}\right)^x + 4\left(\frac{1}{3}\right)^x$$

tenglamani yeching.

Yechish. Berilgan tenglamaning chap qismi R da o'suvchi, o'ng qismi esa kamayuvchi funksiya. Tenglama yagona $x = 0$ ildizga ega.

Javob: 0

5-misol. Ushbu

$$2^x + x^3 = 2^{x^2} + x^6$$

tenglamani yeching.

Yechish. $f(t) = 2^t + t^3$ bo'lsin. U holda $f'(t) = 2^t \ln 2 + 3t^2 > 0$ bo'lib $f(t)$ funksiya monoton o'suvchi. Berilgan tenglamani $f(x) = f(x^2)$ ko'rinishida yozamiz. $x = x^2$, $x = 0$ va $x = 1$.

Javob: 0,1.

5-misol. Ushbu $2^{x-1} = \dfrac{1}{\cos(x-1)}$ tenglamaning $[-1; \ 1]$ kesmadagi yechimlarini toping.

Yechish. $x \in R$ da $2^{x-1} > 0$ bo'lganligi uchun $\dfrac{1}{\cos(x-1)} > 0$, ammo $\cos(x-1) \leq 1$,

shuning uchun

$$\frac{1}{\cos(x-1)} \geq 1 \text{ va } 2^{x-1} \geq 1, \ x \geq 1$$

$x \in [-1; 1]$ shartga ko'ra $x = 1$ ni tenglamaga qo'yib, uning ildizi ekanligini ko'rish mumkin.

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1. THE IMPORTANCE OF THE USE OF PROJECT TECHNOLOGY IN THE DEVELOPMENT OF PROFESSIONAL COMPETENCIES OF STUDENTS IN THE PROCESS OF INDEPENDENT LEARNING

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