

MUSTAQIL ISHLASH UCHUN MASALALAR

1-masala

Isbotlang: tenglama $x^2 + 7y^2 = z^2$

butun sonlarda faqat trivial(hususiyy) yechimga ega: $x = y = z = 0$.

2-masala

Isbotlang: hech qaysi butun n uchun $n^4 + 4$ soni tub bo'la olmaydi.

3-masala

Isbotlang: tenglama

$$x^3 + y^3 + z^3 = 33$$

butun yechimga ega emas.

4-masala

Isbotlang: agar

$$a \equiv b \pmod{m}$$

va

$$EKUB(a, m) = 1$$

bo'lsa, u holda

$$a^k \equiv b^k \pmod{m}$$

har qanday k natural uchun.

5-masala

Barcha butun yechimlarini toping:

$$x^2 - 2y^2 = -1$$

6-masala

Isbotlang: hech qaysi butun n uchun $n^2 + 3$ soni 8 ga bo'linmaydi.

7-masala

Isbotlang: agar

$$a^2 \mid b^2$$

bo'lsa, u holda

$$a \mid b$$

8-masala

Isbotlang: tenglama

$$x^2 + y^2 + z^2 = 2xyz$$

butun yechimga ega emas ($x, y, z \neq 0$).

9-masala

Isbotlang: har qanday butun n uchun

$$11 \mid (n^{11} - n)$$

10-masala

Isbotlang: tenglama

$$x^4 + y^4 = z^2$$

butun yechimga ega emas ($xyz \neq 0$).