Problem 3

Count # of lattice points with **even X-coord** in the interior of
the triangle **(0,0)-(7,0)-(7,5)**.
Count # lattice points in the interior
of **(0,0)-(7/2, 0)- (7/2, 5/2)**.

(Background) **Eisenstein's Lemma**

➤ Is 5 **QR** or **non-QR** (mod 7)?

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(1823-1852)

Problem 3

Eisenstein's Lemma

M = # of lattice points with **even X-coord** in the interior of **(0,0)-(7,0)-(7,5)**.

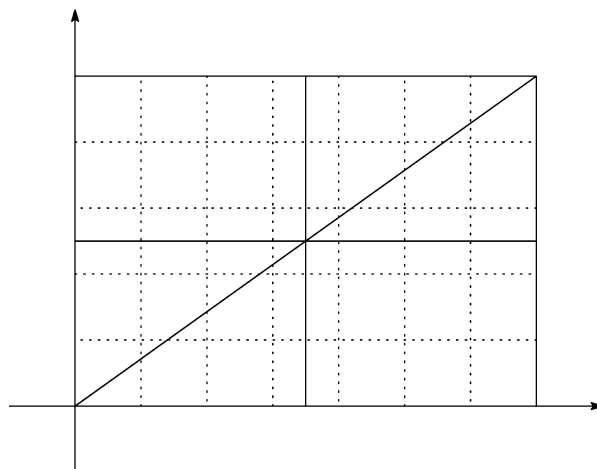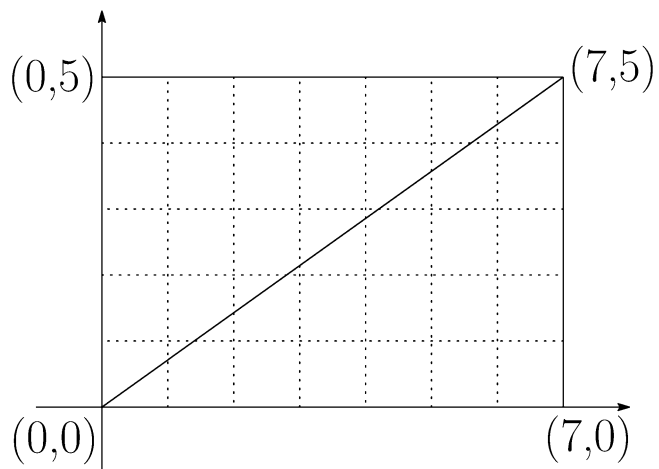N = # of lattice points in **(0,0)-(7/2, 0)- (7/2, 5/2)**.

Then

M ≡ N (mod 2).

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Problem 3

➢ Count # of lattice points.

Answer   M = 7, N = 3

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Problem 3

> Confirm Eisenstein's Lemma

M = 7, N = 3

M ≡ N (mod 2)

M, N are **odd**

⇔ **5 is not QR (mod 7)**

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