

Schriftliche Aufgaben

Name:

Aufgabe 6

Gib jeweils die Elemente der Restklasse an.

a) In \mathbb{Z}_3 gilt $[4] =$

b) In \mathbb{Z}_8 gilt $[4] =$

Aufgabe 7

Gib alle Elemente von \mathbb{Z}_9 an.

$\mathbb{Z}_9 =$

Aufgabe 8

Fülle die Verknüpfungstabelle für die Multiplikation in \mathbb{Z}_7 aus.

Achtung: Es dürfen nur die Bezeichnungen $[0], \dots, [6]$ verwendet werden.

\cdot	[0]	[1]	[2]	[3]	[4]	[5]	[6]
[0]	[]	[]	[]	[]	[]	[]	[]
[1]	[]	[]	[]	[]	[]	[]	[]
[2]	[]	[]	[]	[]	[]	[]	[]
[3]	[]	[]	[]	[]	[]	[]	[]
[4]	[]	[]	[]	[]	[]	[]	[]
[5]	[]	[]	[]	[]	[]	[]	[]
[6]	[]	[]	[]	[]	[]	[]	[]

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Aufgabe 9

Gesucht sind die Restklassen der folgenden Brüche in \mathbb{Z}_{13} . Lies die Ergebnisse in der unten stehenden Multiplikationstabelle ab und begründe jeweils Dein Ergebnis.

a) $\frac{[1]}{[3]} = \boxed{}$, denn $[3] \cdot \boxed{} = \boxed{}$.

b) $\frac{[1]}{[4]} = \boxed{}$, denn $\boxed{}$

c) $\frac{[3]}{[5]} = \boxed{}$, denn $\boxed{}$

Multiplikationstabelle für \mathbb{Z}_{13} :

\cdot	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
[1]	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[2]	[0]	[2]	[4]	[6]	[8]	[10]	[12]	[1]	[3]	[5]	[7]	[9]	[11]
[3]	[0]	[3]	[6]	[9]	[12]	[2]	[5]	[8]	[11]	[1]	[4]	[7]	[10]
[4]	[0]	[4]	[8]	[12]	[3]	[7]	[11]	[2]	[6]	[10]	[1]	[5]	[9]
[5]	[0]	[5]	[10]	[2]	[7]	[12]	[4]	[9]	[1]	[6]	[11]	[3]	[8]
[6]	[0]	[6]	[12]	[5]	[11]	[4]	[10]	[3]	[9]	[2]	[8]	[1]	[7]
[7]	[0]	[7]	[1]	[8]	[2]	[9]	[3]	[10]	[4]	[11]	[5]	[12]	[6]
[8]	[0]	[8]	[3]	[11]	[6]	[1]	[9]	[4]	[12]	[7]	[2]	[10]	[5]
[9]	[0]	[9]	[5]	[1]	[10]	[6]	[2]	[11]	[7]	[3]	[12]	[8]	[4]
[10]	[0]	[10]	[7]	[4]	[1]	[11]	[8]	[5]	[2]	[12]	[9]	[6]	[3]
[11]	[0]	[11]	[9]	[7]	[5]	[3]	[1]	[12]	[10]	[8]	[6]	[4]	[2]
[12]	[0]	[12]	[11]	[10]	[9]	[8]	[7]	[6]	[5]	[4]	[3]	[2]	[1]