

MATH LZK SURVIVAL GUIDE

INTERPRETING VARIABLES & FORMULAS

EXAM DATE: 19.01.2026

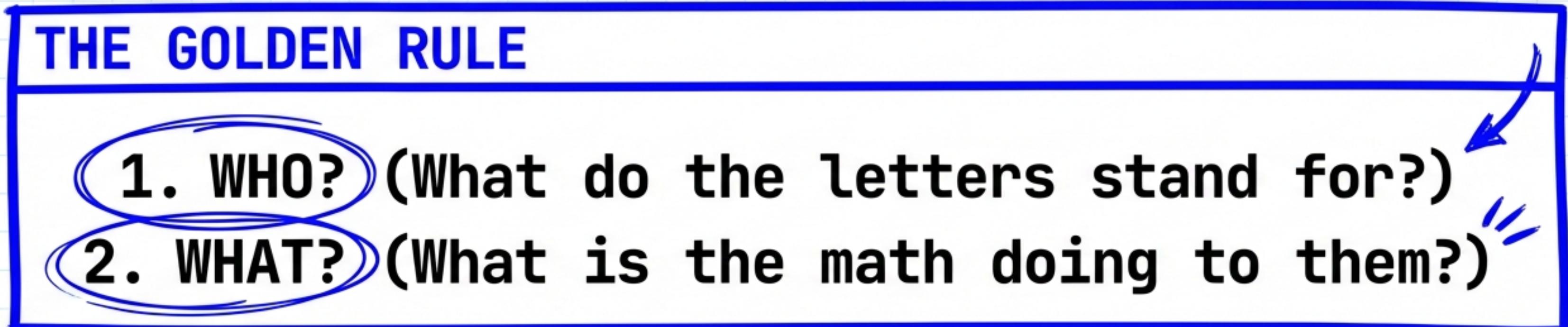
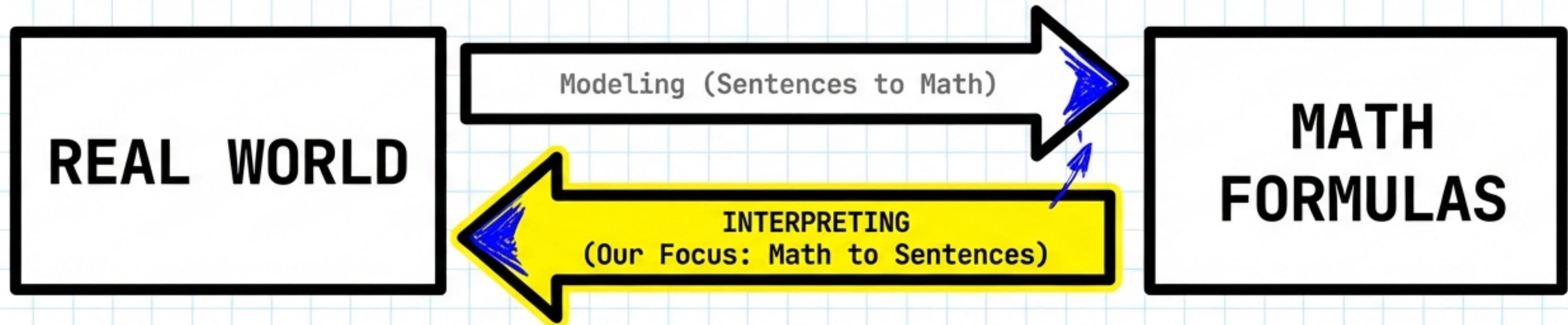
THE VSN PROMISE

- WHO WE ARE: The VBS Student Network. We are in this together.
- THE GOAL: 100% readiness for the Mathematics LZK.
- THE APPROACH: No boring theory. We translate Math into plain English sentences.

ACTION REQUIRED: Grab a pen and paper. You will need them for the exercises at the end.



THE CORE CONCEPT: READING MATH



THE DECODER KEY

Your cheat sheet for the exam.

SYMBOL	MAGIC WORDS
+	Total, Sum, Together, Increased by
-	Difference, Remaining, Discount
•	Area, Total Cost (Price x Amount)
=	Is, Results in, Amounts to
< / >	Less than / More than / Budget Limit

SCENARIO A: THE RESTAURANT



v = Veggie guests

f = Meat guests

a = Cost per meal (€)

$$(v + f) \cdot a$$

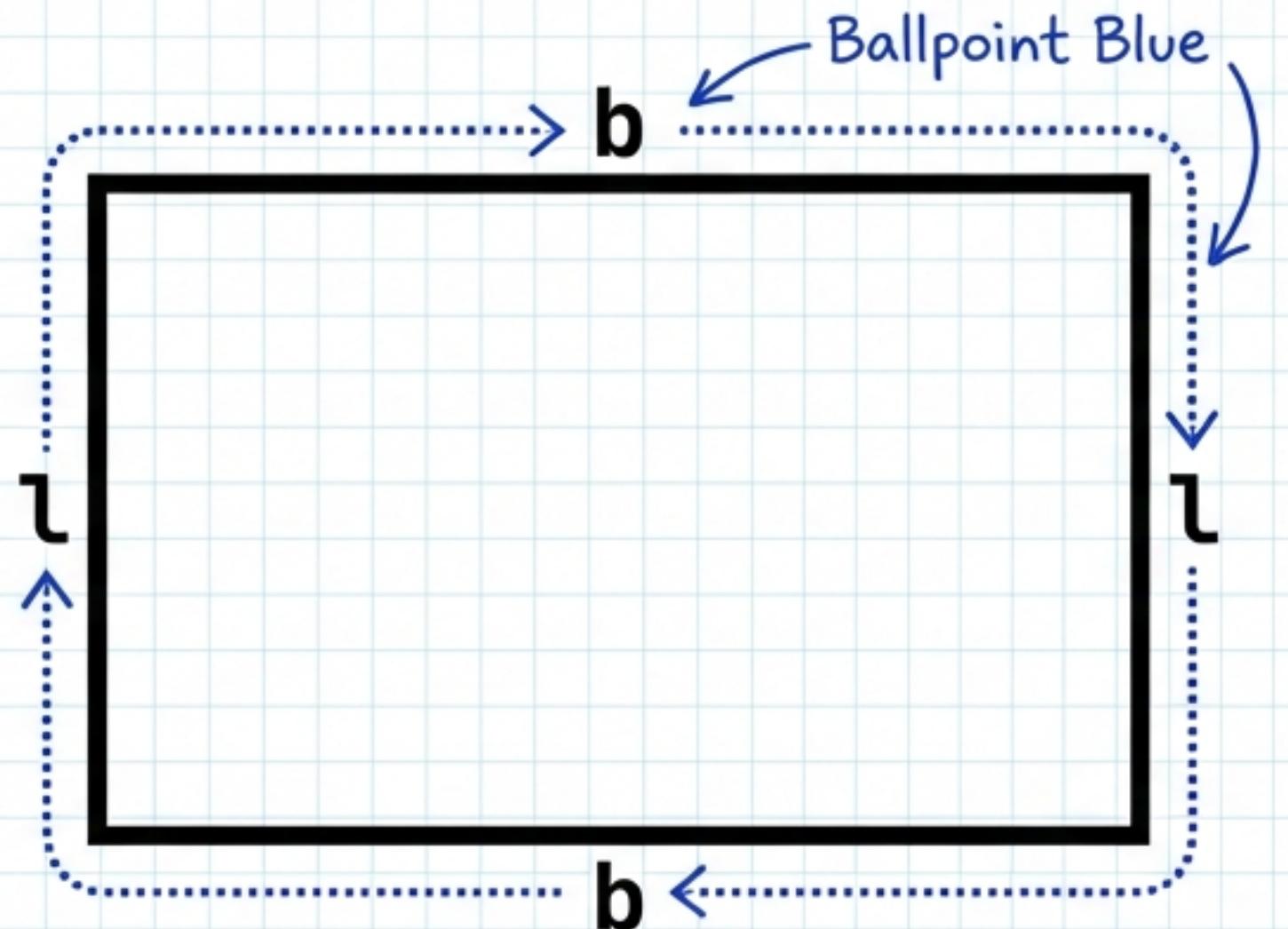


Step 1: The WHO.
Adding people groups
= TOTAL GUESTS

Step 2: The WHAT.
Multiplying by price
= TOTAL REVENUE

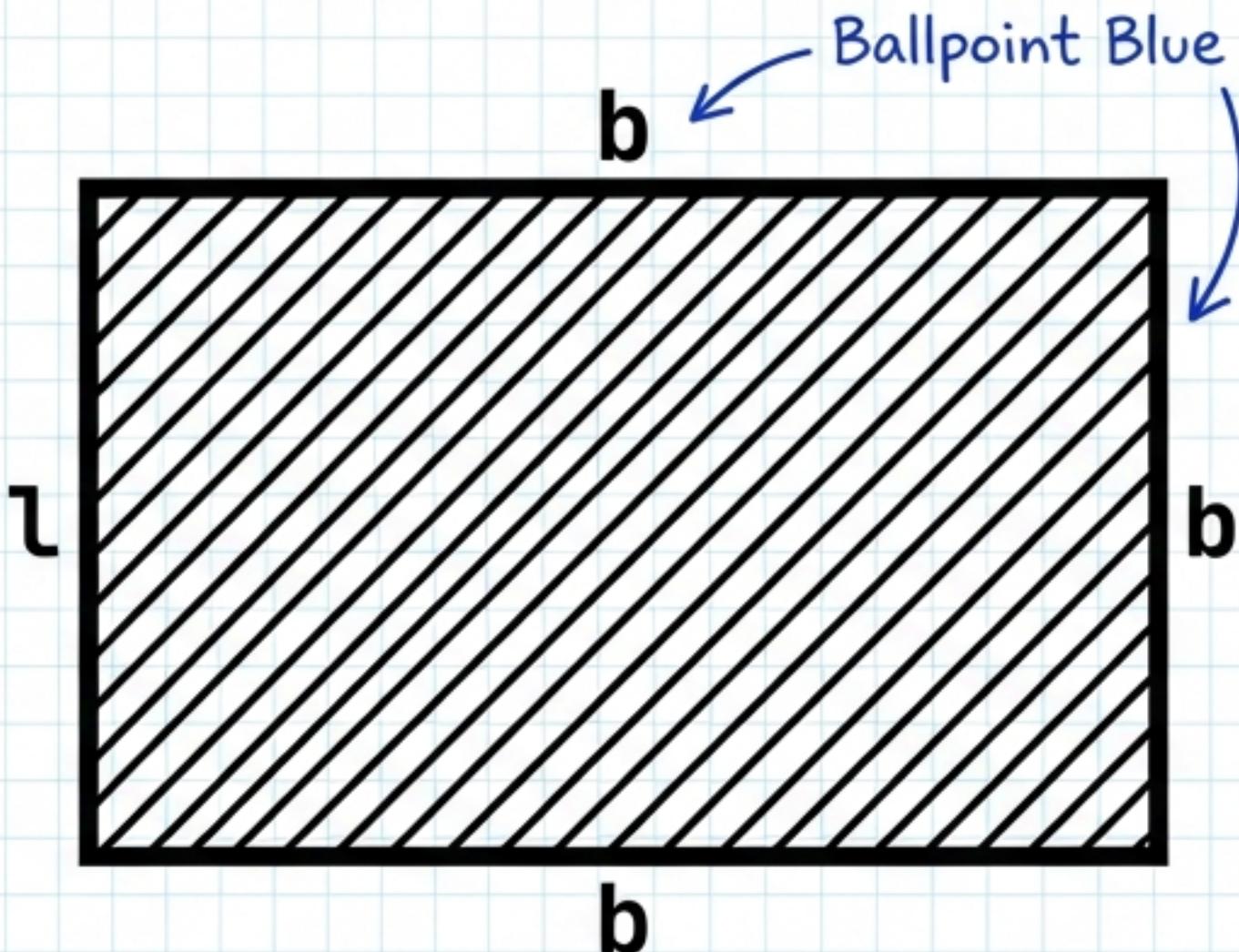
Translation: The total revenue for the night.

SCENARIO B: GEOMETRY



Expression: $2 \cdot l + 2 \cdot b$

Translation: Walking the edge → PERIMETER (Umfang)



Expression: $l \cdot b$

Translation: Covering the inside → AREA (Flächeninhalt)

WARNING: THE PERCENTAGE TRAP



$$p + 20$$

Price goes up by exactly 20 Euros.

FIXED AMOUNT

$$p \cdot 1.2$$

Price goes up by 20% (VAT).

PERCENTAGE CHANGE

VSN PRO TIP

If you see a decimal multiplication (like 0.8 or 1.2), it is ALWAYS a % change.

- $1.2 = +20\%$ (Tax)
- $0.8 = -20\%$ (Discount)

VAT & DISCOUNTS HACK



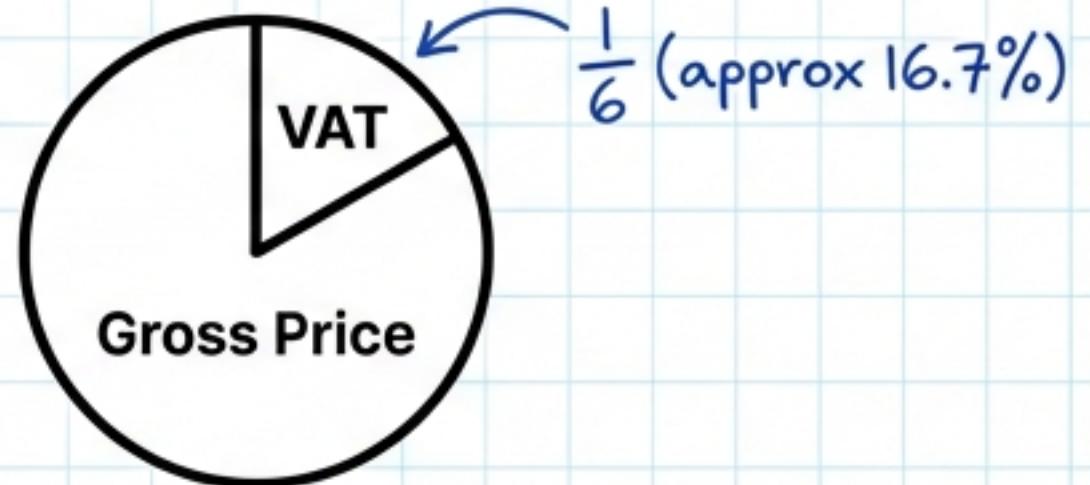
Standard Math:

- Net -> Gross: $\text{Net} \cdot 1.2 = \text{Gross}$
- Gross -> Net: $\text{Gross} / 1.2 = \text{Net}$

The “1/6th” Rule:

The VAT part of a Gross price is **NOT 20%**.
It is exactly 1/6th of the price.

Visual diagram:



Use this for ‘We pay your VAT’ discount questions.

WORKOUT TIME!

Put it to the test.

Solve the next 3
problems on paper before
looking at the answers.

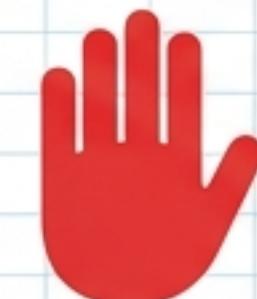
A blue arrow points from the text "Put it to the test." to the first problem in the list.

2.08
a) In einer Schule gibt es halb so viele Lehrerinnen und Schule wie Lehrpersonen. Das hältigen Bediensteten beträgt 34 : 3.

2.07
c) In einem Restaurant entscheiden sich v Gäste für das vegetarische Mittagsmenü, f Gäste bestellen das Menü mit Freisch. Jedes Menü kostet e Euro. Interpretieren Sie die folgenden Terme bzw. Gleichungen.
a) $(v + f) \cdot a$ c) $f + v < 40$
b) $2 \cdot v = f$ d) $f \in [20; 25]$

2.08
c) Ein Rechteck hat die Seitenlängen l und b . Interpretieren Sie die folgenden Terme:
a) $2 \cdot l + 2 \cdot b$ b) $l \cdot b$ c) $0,5 \cdot l \cdot b$

2.14
ABC
Welcher der folgenden Terme beschreibt das Sachverhalt „Zum Preis p eines Produkts kann...?%“?
Begründen Sie Ihre Entscheidung.
Finden Sie für jeden der anderen Terme einen passenden Sachverhalt.
(1) $p + 20$ (3) $p + 0,2$
(2) $p \cdot 1,2$ (4) $p \cdot 0,8$



Don't peek at the
solutions yet!

EXERCISE 1: THE MENU

Source: Task 2.07

Context: A restaurant.

v = Veggie Menus

f = Meat Menus

Interpret these two sentences:

$$2 \cdot v = f$$

$$f + v < 40$$



Hint: Check the Decoder Key for this symbol.

SOLUTION 1

The Math

$$1) \ 2 \cdot v = f$$

The Translation

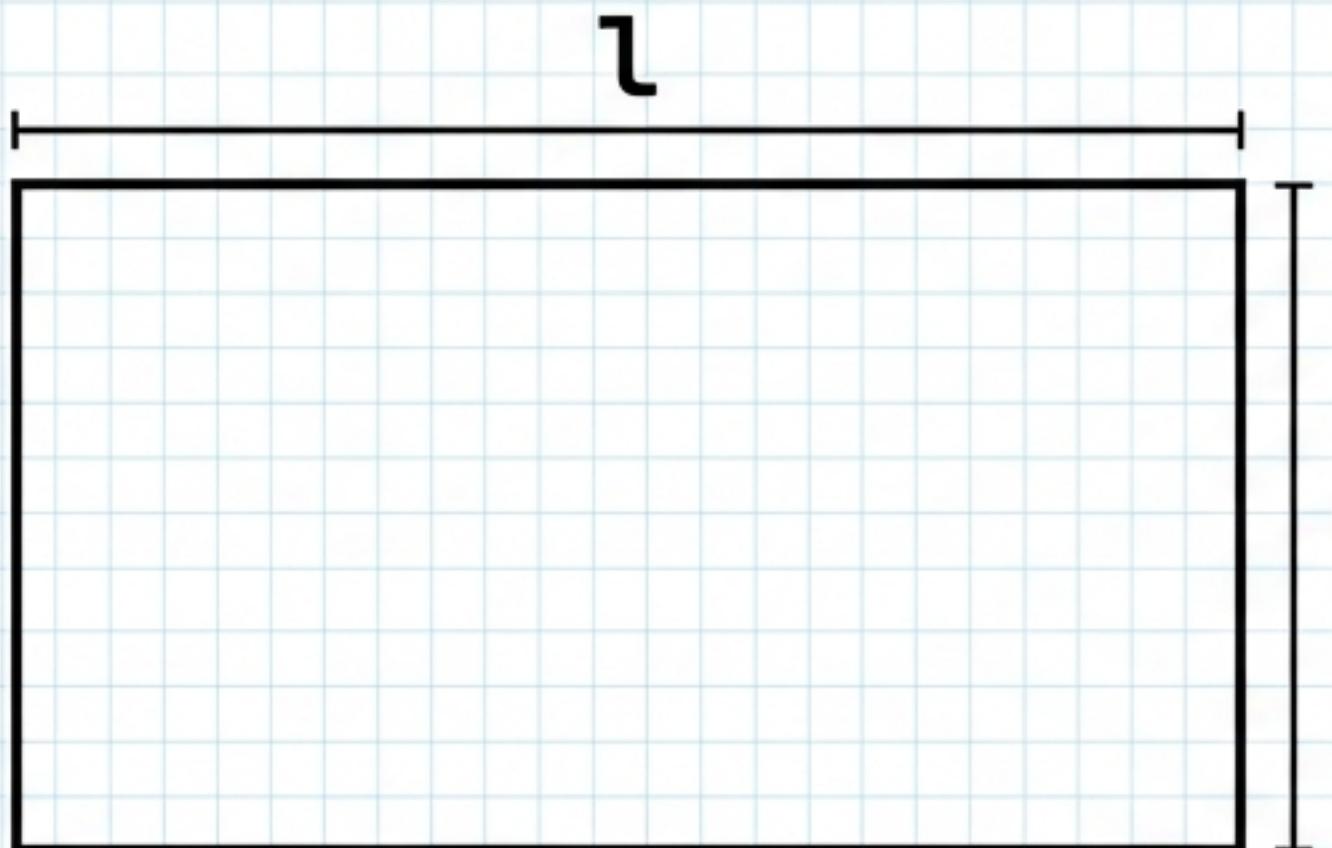
There are **TWICE AS MANY** guests eating meat as vegetarians.

$$2) \ f + v < 40$$

The total number of guests is **FEWER THAN** 40.

EXERCISE 2: THE RECTANGLE

Source: Task 2.08



Interpret these terms:

$$2 \cdot l + 2 \cdot b$$

$$0.5 \cdot l \cdot b$$

Think: Edge vs. Inside.

SOLUTION 2

$$1) 2 \cdot l + 2 \cdot b$$

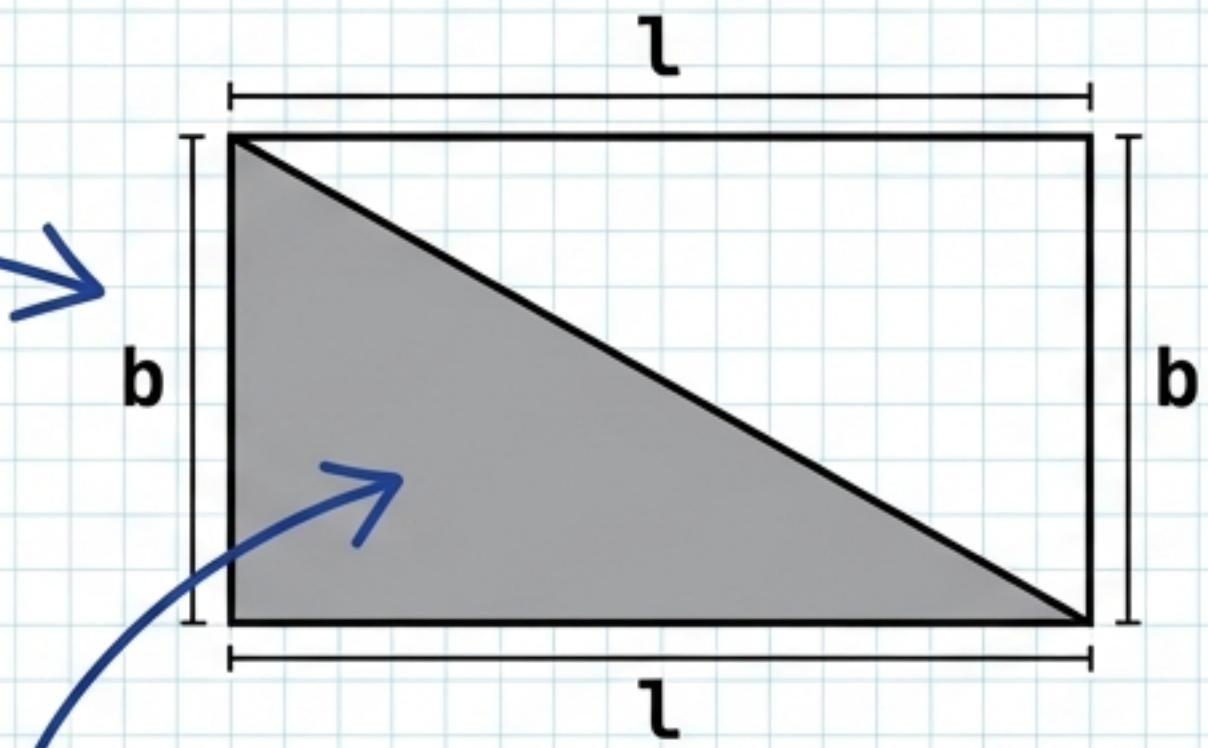
Sum of all sides ->
PERIMETER (Umfang).

$$2) 0.5 \cdot l \cdot b$$

0.5 means 'Half'.

$l \cdot b$ means Area.

Result: HALF THE AREA.



Ballpoint Blue: Area of a Triangle.

EXERCISE 3: THE VAT CHECK

Source: Task 2.14

Which term describes: Price p plus 20% VAT?

$$p + 20$$

$$p \cdot 1.2$$

$$p + 0.2$$

$$p \cdot 0.8$$



Select the correct formula for
total price.

SOLUTION 3

p • 1.2

- X** ... $p + 20$ adds 20 Euros (Fixed).
- X** ... $p + 0.2$ adds 20 cents.
- X** ... $p \cdot 0.8$ is a discount.

**You've cracked the code. You are ready for
the LZK on 19.01.2026! Good luck - VSN Team.**