edulink

Training guide for top scores

Preparation Book for the

TestAS

Core Test

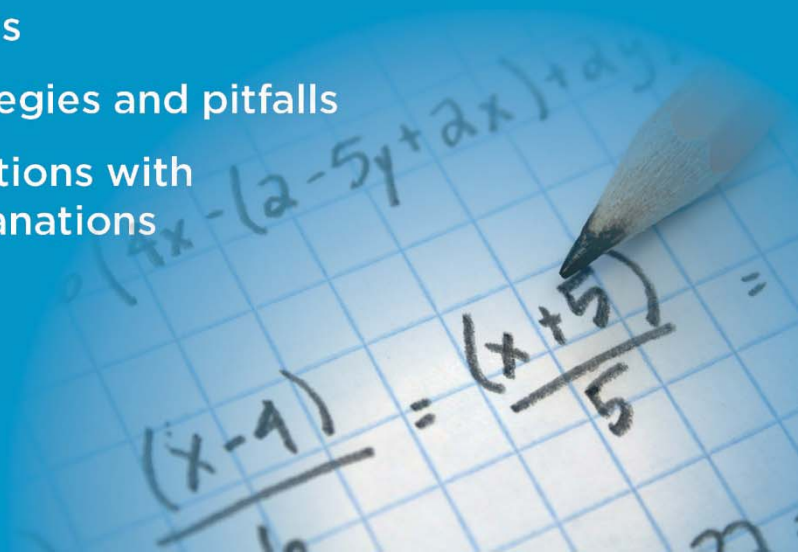
Solving Quantitative Problems

SECOND EDITION

2017

This ebook contains:

- ☑ A review of the most common question types
- ☑ Solution strategies and pitfalls
- ☑ Practice questions with detailed explanations



BAUSCHMID

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FOREWORD

The surest way to a fulfilling and exciting career is to begin your journey with an equally fulfilling and exciting but rigorous education. I began my studies in business at the Ludwig-Maximilians Universität in Munich and the Universität Augsburg and complemented this experience with internships. By combining strong academics with rich professional experiences, I was able to realize my dream of working in the United States and gaining a global perspective on the world economy.

Now with our Munich-based company edulink, we provide college admission counselling over the internet to young men and women who are looking for exceptional educational experiences in Germany. Let's face it. Navigating the university application process can be complicated, especially for students who are not familiar with German universities. Our company makes this process easier for you by providing you with professional advice and strategies for preparing a successful university application.

Due to the highly competitive nature of German-language universities, one of the stumbling blocks for many students is the TestAS exam, an aptitude test for university applicants from non-European countries. The TestAS is one of the criteria used to determine a student's readiness for university level courses in Germany. We created the preparation books to help students take these exams with confidence.

Our goal in writing these books was to give you a complete overview of and a feel for the TestAS exam. These study guides were developed after detailed research with a team who has taken the exams. We have also interviewed dozens of prior test takers to identify the areas where students need the most help. We hope that our preparation books will help you approach the TestAS exam with confidence.

An advanced degree from a German university will pave the way for new opportunities and exciting career paths. I sincerely hope that our test preparation books will help many eager students find fulfilling educational opportunities in Germany.

All the best,

Peter

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2 Required Basic Knowledge

In this section we list a series of topics which are covered during the first years of high school in Maths courses. If you already have a high level of proficiency with Maths, you may consider skipping this section and move on directly to Section 3 – Question Types. Section 3 reviews the types of questions you will most likely encounter in the exam.

The background review in the following section has been created for students who did not study Maths in English and/or students who have not practiced Maths in some time.

2.1 Calculating without a calculator

Below we present a few exercises for you to test your calculation skills. Calculators cannot be used in the test, which is why we strongly recommend that you practice calculating without a calculator.

The equations that you will be required to solve in the exam are generally much easier than the ones you will find below. However, during the test, you will have to solve them under exam and time pressure. Therefore, for best results, we recommend that you prepare for the core and specialist modules of the test (except Humanities) by doing the calculations by hand, and not relying solely on the use of mental arithmetic. It is also smart to become familiar with the question types (Section 3). Past participants have reported that, while they were given enough time to solve the problems in the test, they sometimes still made mistakes because they were not familiar with the types of questions that would be asked.

In addition to understanding the math behind the questions, part of getting the answer right also simply comes down to how well you have read and understood the questions, figures and solutions you are given. Learn to work efficiently, through practice, and pay careful attention to the problems.

EXERCISE SET 1

a) 35 × 6 = ____

b) 74.53 + 734.84 + 1,439.32 + 4,050.06 = _____

c) 163 – ____ = 89

ANSWERS – EXERCISE SET 9

a) $\frac{200}{100} \times 20 = 40$ *Euro*

b) $\frac{15{,}000}{100} \times 15 = 2{,}250$ *Euro*

c) *Percentage of adults = 100% – 20% = 80%*

$\frac{850}{100} \times 80 = 680$ *adults*

d) $\frac{32}{40} = 0{,}8 = 80$ *percent*

e) *Percentage of girls = 100% – 45% = 55%*

$\frac{3{,}800}{100} \times 55 = 2.090$

f) *Percentage to be paid = 100% – 30% = 70%*

$\frac{80}{100} \times 70 = 56$

ANSWERS – EXERCISE SET 10

a) *(300 grams ÷ 20) × 100 = 1500 grams = 1.5 kilo*

b) $\frac{6}{24} = 0.25 = 25$ *percent*

c) $\frac{12}{100} \times 105 = 12.60$ *Euro*

d) $\frac{180}{90} \times 100 = 200$ *loaves of bread*

e) *2 × (2 m × 0.5 m) × 25 Euro/m = 50 Euro*

f) $\frac{38}{90} \times 5 \approx 2$

38 + 2 = 40 seats.

3.3.3 Interest Calculations

Questions with interest rates often ask how certain amounts of money change through interest. This means that you must master the basic rules of percentage calculations and be able to apply these correctly to the data.

Since the calculation of interest is a special form of percentage calculation, there are some specific terms that correspond to those of the percentage calculation:

EXAMPLE 21

Jon knows two sacks of flour weigh 13 kg. There are 5 sacks of flour in the storeroom that he has to move into the kitchen. How many total kg of flour will he have to move?

(A) 30
(B) 32.5
(C) 35
(D) 37.5

Answer: B

Determine how much 1 sack of flour weighs: 13 kg/2 = 6.5 kg per sack

If there are 5 sacks, then he will have to move: 5 x 6.5 kg = 32.5 kg

3.4.1 Currency Units

Questions about currency units test your ability to use various monetary currencies in relation to each other and to convert amounts of money from an initial currency to the target currency.

A general formula for calculating is:

Domestic currency (Euro) = $\frac{\text{Amount in foreign currency} \cdot 100}{\text{Exchange rate}}$

For simplicity, one usually does not use 100 but 1, especially when it comes to Dollars or British Pounds. The two examples below illustrate currency unit calculations.

EXAMPLE 22

The exchange rate for the Danish Krone is 750 DKK. That means € 100 = 750 DKK. By this rate, how much is 30 DKK in Euros?

(A) 4
(B) 5
(C) 6
(D) 7

$\frac{5}{6} l^2 = 135$

$l^2 = 162$

$l = \sqrt{162}$

$l = \sqrt{81 * 2}$

$l = 9\sqrt{2}$

Q17

Armen grows lettuce. He donates 1/3 of his lettuce to the soup kitchen and sells 7/8 of the rest to the supermarket. What percentage of lettuce does Armen have left to sell to the local restaurant?

(A) 8.33

(B) 29.17

(C) 70.08

(D) 91.67

Answer: A

Step 1: Determine how much he sells to the supermarket:

7/8 of 2/3 *= 7/8 x 2/3*

= 7/12

Step 2: Determine what fraction of lettuce is left:

= 1 – (1/3 + 7/12)

= 1 – (4 + 7)/12

= 1 – 11/12

= 1/12

Step 3: Convert the fraction to a percentage:

= 1/12 x 100

= 8.33%

Q18

A swimming pool can be emptied with two pipes in 300 minutes. If the larger pipe can empty the pool alone in 420 minutes, how long would it take the smaller pipe to empty the pool?

(A) 40/3h

(B) 44/3h

(C) 46/3h

(D) 50/3h

Answer: A

Let x be the numbers of hours that the smaller pipe can empty the pool. We have

1/8+1/x=1/5 *(x+8)/8x=1/5* *5x+40=8x*

40=3x *x=40/3*

Q19

Sports	Number of Students
Basketball	40
Volleyball	30
Table Tennis	25