

Exercises for the Test II

Materials for study Test 2 (chapter 3) BUS 101

You shall study examples, practice problems and exercises which are at the end of section 3. 1. 3. 2, and 3. 3

Section 1. Examples are on pages 199, 201, 203, 205. Practice problems 3 on page 202, 4 on page 203, 5 on page 204 and 6 on page 205.

Section 2. Examples are on pages 218, 220, 222. Practice problems 1 on page 218, 2 on page 220, 3 and 4 on page 223, 5 on page 224.

Section 3. Examples are on pages 233, 235. Practice problems 2 on page 232, 3 on page 234, 5 on page 237.

Lessons (power points) on Google Classroom Percentages, Compound Interest, Geometric Series.

1. The price of a product changed from \$144 to \$122.4. Find the percentage of this change. formula $\text{new price}/\text{old price} = \text{scale factor}$ must be written on its normal form.
2. Find the single percentage increase or decrease equivalent to:
 - a) 11% increase followed by 15% decrease
 - b) 8% decrease followed by an 11% increase.
 - c) Find the second percentage if the first percentage is 6 % increase and the single percentage is increase 0.7 %

Multiplication of scale factors, write in its normal form, write the single percentage

3. Work out the missing numbers (index number, price) correct to one decimal place, on the table with data between (Y 1) and year 4 (Y 4).
 - b) If the price for year five is 68 and the index number is 104.6, find the year that is used as the base year.

| Year | 1 | 2 | 3 | 4 | 5 |
|--------------|-----|-----|----|----|---|
| Price | — | 60 | 65 | 63 | — |
| Index number | 104 | 100 | — | — | — |

Index number = scale factor from base year $\times 100$. Scale factor is ratio of the data of a year with data of the base year.

4. How must the total sum be if the principal of \$14200 is invested for eight years at 5.2% compound continuous interest annually.

Applications of the formula $S = P \left(1 + \frac{r}{100}\right)^n$ (all cases)

5. A person needs more than \$9400 to pay the last instalment of a loan, and he can pay a monthly instalment of less than \$230. Bank A offers a loan of \$10000 for three years at 5.4% interest compound annually. Bank B offers a loan of \$11500 for five years at 4.4% interest compound annually. What will be the person's choice? Finding the instalment and formula for sum of geometric progression. $S = a_1 \frac{r^n - 1}{r - 1}$ Example page 235

6. A person wishes to have a future value of 16000 depositing 11000 after five years in continuous compound interest. Find the interest rate.

Application of the formula $P = S \left(1 + \frac{r}{100}\right)^{-n}$

Note. Exercises 1, 2, 3, and 4 have 15 points. Exercises 5 and 6 have 20 points