

Decimal fractions

Calculation techniques

Examples

Calculate the following without using a calculator.

1. $84,3 + 69,85 = 84,3 + 70 - 0,15 = 154,3 - 0,15 = 154,15$ (using compensation)
2. $37,66 - 18,49 = 37,66 - 18 - 0,49 = 19,66 - 0,49 = 19,17$ (breaking down the subtrahend)
3. $16,25 \times 40 = 16,25 \times 4 \times 10 = 65 \times 10 = 650$ (using factorisation)
4. $24 \times 4,125 = 12 \times 8,25 = 6 \times 16,5 = 3 \times 33 = 99$ (using doubling and halving)
5. $25,6 \times 19 = 25,6 \times (20 - 1) = (25,6 \times 20) - (25,6 \times 1) = 512 - 25,6 = 486,4$ (using compensation)
6. $1,25 \div 0,5 = \frac{1,25}{0,5} = \frac{1,25 \times 100}{0,5 \times 100} = \frac{125}{50} = \frac{125 \times 2}{50 \times 2} = \frac{250}{100} = 2,5$ (using equivalent fractions)
7. $(2,5)^2 = \left(\frac{25}{10}\right)^2 = \frac{25^2}{10^2} = \frac{625}{100} = 6,25$ (using equivalent fractions)
8. $\sqrt[3]{0,729} = \sqrt[3]{\frac{729}{1\,000}} = \sqrt[3]{\frac{3^6}{10^3}} = \frac{3^2}{10} = \frac{9}{10} = 0,9$ (using factorisation)

1. Estimate the number of decimal places in the following answers.

a) $23,8 - 0,854$

b) $4,254 \times 0,9$

2. First estimate and then calculate each answer without using a calculator.

a) $17,19 + 39,44$

b) $507,13 - 99,99$

c) $84,5 \times 60$

d) $70,25 \times 28$

e) $32,4 \times 21$

f) $16,5 \div 1,5$

g) $(0,5)^2 - (-0,5)^3$

h) $\sqrt[3]{0,512} + \sqrt{0,64}$

3. First estimate and then calculate by using a calculator. Round off each answer to two decimal places.

a) $28,37 + 44,91$

b) $101,73 - 64,18$

c) $98,62 \times 15,7$

d) $83,09 \div 15,4$

e) $\frac{13,85 \times 18,29}{5,98}$

f) $\frac{98,68 + 81,27}{76,13 - 15,89}$

4. Calculate the following correct to two decimal places.

a) $(\sqrt{8,41})^2 - (\sqrt{7,29})^2$

b) $(\sqrt{7,84} + \sqrt{5,76})(\sqrt{7,84} - \sqrt{5,76})$

c) $2,5^2(\sqrt[3]{15,625} - \sqrt{6,25})$

d) $(1,25^2 + \sqrt{1,25})(1,25^3 - \sqrt[3]{1,25})$

Decimal fractions

Solving problems; Equivalent forms; Finance

Examples

- Calculate the percentage increase if the price of a train ticket of R60 is increased to R76,50.
Increase in price = $R76,50 - R60 = R16,50$; Percentage increase = $\frac{16,50}{60} \times 100\% = 27,5\%$
- Calculate the percentage decrease if the price of a lounge suite of R8 999,95 is reduced by R990,00.
Percentage decrease = $\frac{990,00}{8\,999,95} \times 100\% = 11\%$

1. Which common fraction is equivalent to the following?

a) $\sqrt{12,25}$

b) $\sqrt[3]{3,375}$

c) $\sqrt{7,84}$

d) $\sqrt[3]{1,728}$

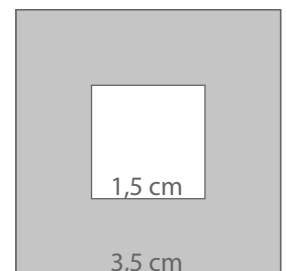
e) $\sqrt{24,01}$

f) $\sqrt[3]{15,625}$

2. The drawing below shows two squares.

a) Calculate the area of the shaded part of the drawing.

b) Express the area of the small square as a decimal fraction of the area of the large square, correct to 4 decimal places.



3. How much will a car cost if its original price of R180 000 is reduced by 12,25%?

4. A wall unit costs R6 999,95 VAT inclusive. Calculate the VAT amount on the unit.

5. A shop owner buys a washing machine for R1 449,00.
Calculate the percentage profit if it is sold for R1 699,95.



Tips

* Profit = $SP - CP$

* Loss = $CP - SP$

* % profit = $\frac{\text{profit}}{\text{cost price}} \times 100\%$

* % loss = $\frac{\text{loss}}{\text{cost price}} \times 100\%$

6. A 2-piece bedroom suite costs R2 399,95. It will cost R1 000 more if you buy it on terms with a deposit of R399,95 and 24 equal monthly instalments.

a) Determine the monthly instalment.

b) Determine the interest rate per annum if you buy the bedroom suite on terms.