

Series: Mathematics - from zero to engineer (6).

Decimals

$$25 : 8 = 3,125$$

Rounding decimal fractions.

1) significant figures

- they are counted starting from the first non-zero digit beginning from the left-hand side of the number

2) decimal places

- these places are counted to the right of the decimal point

9,4534 $\rightarrow$ rounded to 2 significant figures is 9,5

$\rightarrow$ rounded to 3 significant figures is 9,45

0,001354 $\rightarrow$ rounded to 2 significant figures is 0,0014

18,7249 $\rightarrow$ rounded to 4 significant figures is 18,72

8,1265 $\rightarrow$ rounded to 4 significant figures is 8,127

123,4467 $\rightarrow$ rounded to 1 decimal place is 123,4

$\rightarrow$ rounded to 2 decimal places is 123,45

47,0235 $\rightarrow$ rounded to 3 decimal places is 47,024

Trailing zeros

12,645 $\rightarrow$ rounded to 2 significant figures is 13 000

13,1 $\rightarrow$ rounded to 3 decimal places is 13,100

1515 $\rightarrow$ rounded to 2 significant figures is 1500

25,13 $\rightarrow$ rounded to 4 decimal places is 25,1300

> trailing zeros

Common fractions as decimals and decimals as common fractions.

$$\frac{7}{4} = 7 : 4 = 1,75$$

$$1,224 = \frac{1224}{1000} = \frac{153}{125}$$

$$\frac{3}{8} = 3 : 8 = 0,375$$

$$0,52 = \frac{52}{100} = \frac{13}{25}$$

Non-terminating decimals

$$\frac{1}{3} = 0,3333... = 0,(3)$$

read as: zero point three repeating

$$\frac{2}{11} = 0,181818... = 0,(18)$$

$$\frac{1}{7} = 0,142857142857142857... = 0,(142857)$$

Non-terminating decimal fractions as common fractions.

$$0,(18) = \frac{2}{11}$$

$$100 \cdot 0,(18) = 18,(18)$$

$$100 \cdot 0,(18) - 0,(18) = 18,(18) - 0,(18)$$

$$99 \cdot 0,(18) = 18 \quad / : 99$$

$$0,(18) = \frac{18}{99} = \frac{2}{11}$$

$$2,0(315) = 2 \frac{7}{222}$$

$$2,0(315) = 2 + 0,0(315)$$

$$1000 \cdot 0,0(315) = 31,5(315)$$

$$1000 \cdot 0,0(315) - 0,0(315) =$$

$$= 31,5(315) - 0,0(315)$$

$$999 \cdot 0,0(315) = 31,5 \quad / : 999$$

$$0,0(315) = \frac{31,5}{999} = \frac{315}{9990} = \frac{7}{222}$$

$$315 : 45 = 7 \quad 9990 : 45 = 222$$

$$0,(21) = \frac{7}{33}$$

$$100 \cdot 0,(21) = 21,(21)$$

$$100 \cdot 0,(21) - 0,(21) = 21,(21) - 0,(21)$$

$$99 \cdot 0,(21) = 21 \quad / : 99$$

$$0,(21) = \frac{21}{99} = \frac{7}{33}$$

$$3,2(1) = 3 \frac{19}{90}$$

$$3,2(1) = 3,2 + 0,0(1)$$

$$10 \cdot 0,0(1) = 0,1(1) \rightarrow 0,(1) = 0,1(1)$$

$$10 \cdot 0,0(1) - 0,0(1) = 0,1(1) - 0,0(1)$$

$$9 \cdot 0,0(1) = 0,1 \quad / : 9$$

$$0,0(1) = \frac{0,1}{9} = \frac{1}{90}$$

$$3 \frac{2}{10} + \frac{1}{90} = 3 \frac{18}{90} + \frac{1}{90} = 3 \frac{19}{90}$$