Charles Sturt University

Answers to medication calculations are required in decimal form in order to draw up or measure out a dose. As most of the formulae you will meet are in fraction form, a conversion to a decimal answer usually needs to be made.

This sheet will teach you to convert fractions to decimals and round to an appropriate number of decimal places.

Converting fractions to decimals

A fraction, whether it is **proper** or **improper** (see the Glossary of Terms on this website), can be made into a decimal by **dividing the numerator by the denominator**.

If a fraction is a proper fraction such as $\frac{1}{2}$ then the decimal answer will be smaller than 1.

If a fraction is an improper fraction such as $\frac{15}{8}$ then the decimal answer will be larger than 1.

The fraction bar becomes a division sign.

Rule: divide the bottom number into the top number.

Examples

Convert these fractions to decimals:

a) $\frac{1}{2}$

$$\frac{1}{2} = \ 2\overline{\smash{)}1\ .\ {}^{1}0}^{\ \ \ 0\ .\ 5} = 0.5$$

Notes:

The numerator 1 becomes 1.0.

Be careful to keep the decimal points and numbers lined up when dividing.

Space out the division sum so you have room to carry across any remainders.

Use maximum of 3 noughts if needed.

Note: the answer is smaller than 1.

b) $\frac{9}{20}$

$$\frac{9}{20} = \ 20\overline{\smash{)}9\ .\ {}^{9}0\ {}^{10}0}^{\ \ \ 0\ .\ 4\ \ \ 5} = 0.45$$

c) $\frac{27}{5}$

$$\frac{27}{5} = 5\overline{\smash)2\ ^27.\ ^20\ 0}^{\ 0\ 5\ .\ 4\ 0} = 5.40 = 5.4$$

Note: the answer is bigger than 1

d) $\frac{3}{8}$

$$\frac{3}{8} = 8\overline{\smash)3.\ ^30\ ^60\ ^40}^{\ 0\ .\ 3\ 7\ 5} = 0.375$$

Note: all three noughts were needed here.

Rounding

Different calculations will require rounding to either the nearest whole number, to 1 decimal place or to 2 decimal places. Your lecturer will give advice on the appropriate level of rounding.

If you are rounding to 2 decimal places, then you need to divide through to 3 decimal places (3 noughts after the decimal point when dividing).

If you are rounding to 1 decimal place, then you need to divide through to 2 decimal places (2 noughts after the decimal point when dividing).

If you are rounding to the nearest whole number then you need to divide through to 1 decimal place (1 nought after the decimal point when dividing).

Rule: to round off a certain number of decimal places look at the next place value to the one you are rounding off to. If this number is 5 or greater, round up. If it is 0, 1, 2, 3, or 4 then round down.

Examples

a) Round 34.6 to the nearest whole number

34 | .6   as 6 is bigger than 5 round up to 35

b) Round 6.24825 to 1 decimal place

6.2 | 4825   825 is dropped off straight away

6.2 | 4   as 4 is smaller than 5 round down to 6.2

c) Round 0.152789 to 2 decimal places

0.15 | 2789   as 2 is smaller than 5 round down to 0.15

d) Convert $\frac{4}{7}$ to a decimal rounded to 2 decimal places (we need 3 noughts after the decimal point)

$$\frac{4}{7} = 7\overline{)4 \cdot {}^40\ {}^50\ {}^10} \quad \begin{array}{c} 0 \cdot 5\ 7\ 1 \end{array} = 0.57 \mid 1 = 0.57$$

e) Convert $\frac{25}{6}$ to a decimal rounded to 1 decimal place (we need 2 noughts after the decimal point)

$$\frac{25}{6} = 6\overline{)2\ {}^25 \cdot {}^10\ {}^40} \quad \begin{array}{c} 0\ 4 \cdot 1\ 6 \end{array} = 4.1 \mid 6 = 4.2$$

Exercises

Convert these fractions to decimals

1. $\frac{3}{4}$ 2. $\frac{25}{4}$ 3. $\frac{13}{20}$ 4. $\frac{7}{8}$ 5. $\frac{97}{20}$

Convert to decimals and round to 2 decimal places

6. $\frac{1}{3}$ 7. $\frac{5}{12}$ 8. $\frac{2}{9}$ 9. $\frac{6}{7}$ 10. $\frac{17}{6}$

Simplify these fractions before converting to decimals

11. $\frac{25}{125}$ 12. $\frac{24}{30}$ 13. $\frac{325}{250}$ 14. $\frac{300}{1200}$ 15. $\frac{35}{45}$ (round to 2dp)

Solutions

1. 0.75 2. 6.25 3. 0.65 4. 0.875 5. 4.85

6. 0.33 7. 0.42 8. 0.22 9. 0.86 10. 2.83

11. $\frac{1}{5} = 0.2$ 12. $\frac{4}{5} = 0.8$ 13. $\frac{13}{10} = 1.3$ 14. $\frac{1}{4} = 0.25$ 15. $\frac{7}{9} = 0.78$

For more information

Visit our intro to maths page on the Charles Sturt Student Portal where you can access more mathematics and numeracy resources, find and register for our Enhancing Numeracy workshops or make a 1:1 appointment with our numeracy advisers.