

Exercise WS1.1

Without using your calculator, calculate:

1. $5 - (-12) + (-3)$
2. $6 - (+77) - (-77)$
3. $4 - 7 + (-8) + 9$

Exercise WS1.2

Without using your calculator, calculate:

1. $4 \div (-2)$
2. $(-6) \times (+3)$
3. $(-5) \times (-4) \div (-2)$

Exercise WS1.3

Factorise:

1. $5 - 25 + 75$
2. $-3 - 9 + 12$

Multiply out:

3. $3 \times (4 + 100)$
4. $-6 \times (15 - 2)$

Exercise WS1.4

Simplify, where possible, using your calculator if necessary:

1. $\frac{5}{95}$

2. $\frac{5}{27}$

3. $\frac{16}{64}$

Exercise WS1.5

Calculate, without using your calculator:

1. $\frac{1}{5} + \frac{3}{4}$

2. $\frac{3}{11} + \frac{2}{9}$

3. $2 + \frac{5}{9} - \frac{3}{8}$

Exercise WS1.6

1. Calculate, without using your calculator:

(a) $\frac{1}{3} \times \frac{2}{5}$

(b) $\frac{1}{3} \div \frac{2}{5}$

(c) $\frac{1}{8} \div \frac{1}{4} + \frac{1}{2}$

2. Factorise, if possible:

(a) $18 + 24$

(b) $\frac{15}{16} + \frac{5}{8}$

(c) $\frac{9}{10} + \frac{3}{9}$

Exercise WS1.7

1. Attempt these without using your calculator. Then check your answers using your calculator:

- (a) 0.15×5
- (b) $3.85 \div 100$
- (c) $0.55 \div 0.05$
- (d) $0.01 \div 10$

2. Convert the following into their equivalent fractions:

- (a) 0.25
- (b) 0.22
- (c) 0.6

3. Convert the following into their equivalent decimals:

- (a) $\frac{1}{4}$
- (b) $\frac{3}{16}$
- (c) $\frac{5}{3}$

Exercise WS1.8

1. Using your calculator if necessary, convert the following into percentages, rounded to 2 decimal places:

- (a) 0.225
- (b) $\frac{4}{9}$

(c) $\frac{12.5}{100}$

(d) 4

2. Find:

(a) $7\frac{1}{2}\%$ of 200

(b) 0.5% of 150

(c) 0.75% of 90

3. A seller gives a discount of 10% of the list price for immediate payment but always charges $2\frac{1}{2}\%$ of the selling price to cover transport costs. (a) How much would I have to pay, including transport costs, for a good with a list price of £200, assuming I pay immediately? (b) Does it matter whether we add the transport costs before or after the discount for immediate cash?

4. If GDP (a measure of national production of goods and services) fell by 3.5% between 1990 and 1991, and rose by 2.5% between 1991 and 1992, what was the level of GDP in 1992 as (a) a proportion and (b) a percentage of GDP in 1990? (c) Express the levels of GDP in each of the three years 1990-1992 in index number form, with 1992 = 100.

Exercise WS1.9

Attempt these without using your calculator. Then check your answers using your calculator.

1. 2^4

2. $\sqrt[3]{27}$

3. $\sqrt{36}$

4. $\sqrt[3]{125}$