

Exercise W1.1

Without using your calculator, calculate:

1. $-11 + 7 - (-5)$
2. $(-5) + (-3) - (+3) + 4$
3. $-11 + (-17) + 11 - (-28)$

Exercise W1.2

Without using your calculator, calculate:

1. $-14 \div (-2)$
2. $24 \div (-6) \times (-3)$
3. $(+44) \div (-11)$

Exercise W1.3

Factorize:

1. $11 - 121 + 77$
2. $-7 + 5 - 12$

Multiply out:

3. $-15 \times (-3 + 10)$
4. $-3 \times (-5 - 2)$

Exercise W1.4

Simplify, where possible, using your calculator if necessary:

1. $\frac{9}{99}$

2. $\frac{17}{51}$

3. $\frac{375}{750}$

Exercise W1.5

Calculate, without using your calculator:

1. $\frac{1}{2} - \frac{1}{8}$

2. $4\frac{1}{2} - 3\frac{1}{8}$

3. $\frac{3}{5} - \frac{3}{7}$

Exercise W1.6

1. Calculate, without using your calculator:

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

(b) $5\frac{1}{4} \div 2\frac{1}{4}$

(c) $\frac{3}{7} \times \frac{7}{9} + \frac{2}{3}$

2. Factorize, if possible:

(a) $-\frac{2}{3} - \frac{1}{9}$

(b) $\frac{3}{4} + \frac{1}{3}$

(c) $\frac{1}{7} + \frac{7}{8}$

Exercise W1.7

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

(a) 0.175×10

(b) 4.5×100

(c) 3.5×5

(d) $0.05 \div 0.01$

2. Convert the following into their equivalent fractions:

(a) 0.125

(b) 0.45

(c) 0.175

3. Convert the following into their equivalent decimals:

(a) $\frac{3}{8}$

(b) $\frac{2}{9}$

(c) $\frac{1}{3}$

Exercise W1.8

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

(a) $\frac{100}{111}$

(b) 0.1175

(c) $\frac{1}{8}$

(d) 0.375

2. Find:

(a) 5% of 0.5

(b) 11% of 99

(c) 3.5% of 0.9

3. If I spend 15% of my income on food and my income increases from 500 to 550 euros per week, (a) What is the absolute increase in my spending on food? (b) What is the percentage increase? (c) How does the percentage increase in my spending on food compare with the percentage increase in my income? (d) If the increase in my income was 100 euros/week rather than 50 euros/week, how would your answers to (a)-(c) above be changed?

4. In the UK the average hourly wage of unskilled males was £6.20 in 1993, £5.90 in 1997 and £6.30 in 2002. The corresponding values for unskilled females were £4.50, £4.40 and £4.90. (These are median values expressed in terms of 2002 prices.)

(a) Calculate the year-to-year percentage change in the male wage and the female wage.

(b) Calculate the overall percentage change in the male wage and the female wage between 1993 and 2002.

(c) Explain why the overall percentage change does not equal the sum of the year-to-year percentage changes.

- (d) Express each wage data series in index number form with 1993 = 100.

Exercise W1.9

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

1. 6^3
2. $2^2 \times 2^3$
3. $\sqrt{9 \times 4}$
4. 1×2^6