# CALCULATOR SKILLS

## Basic keys

| Key | Use | Key | Use |
|---|---|---|---|
| + , − , × , ÷ | Basic operations | (−) or +/− | Enters negative numbers |
| = | Equals sign, gives the answer | ▭ or $a^{b/c}$ | Enters fractions |
| · | Decimal point | ( ) | Enters parentheses (brackets) |
| DEL | Deletes previous entry | $x^2$ | Squares a number |
| Ans | Retrieves previous answer | $\sqrt{\ }$ | Finds the square root of a number |
| ✣ | Moves cursor around the screen | $x^3$ | Cubes a number |
| MODE or SHIFT or 2ndF | Accesses other operations | $\sqrt[3]{\ }$ | Finds the cube root of a number |

## 1 Basic operations

### Example 1

#### Performing a calculation

| Question | Calculator steps | Answer |
|---|---|---|
| 34 + 6 − 16 | 34 + 6 − 16 = | 24 |
| 7.4 × 9.1 | 7.4 × 9.1 = | 67.34 |
| 234 ÷ 1.5 | 234 ÷ 1.5 = | 156 |
| 4569 ÷ (1.7 + 4.3) | 4569 ÷ ( 1.7 + 4.3 ) = | 761.5 |

### Example 2

#### Correcting a wrong entry

Calculating 34 + 6 − 16

**a** Wrong entry: 34 + 8

To delete the 8 and continue, enter DEL 6 − 16 =

**b** Wrong entry: 34 + 6 + 16 =

To correct this, press ← repeatedly to go back to the second +, press DEL and then −, then press =


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**EXERCISE 1** ANSWERS ON P. 594

## Basic operations

**1** Calculate each expression.

**a** $362 \times 14$
**b** $26.3 - 11.8$
**c** $810 \div 18$
**d** $5.3 \times 1.08$
**e** $51.1 \div 14.6$
**f** $19.3 + 8.8 - 1.2$
**g** $2.4 \div 0.2 + 11$
**h** $5.6 \times (0.1 + 0.2)$
**i** $(56 - 24) \div (1.2 - 1)$
**j** $12.6 \times 3.8 - 18.4$
**k** $(16.07 + 9.02) - (38.3 - 5.126)$
**l** $(24.8 + 3.06 + 9.4) \div 3$

**2** Bronte purchased a loaf of bread for $2.75, a packet of cornflakes for $4.55 and 3 kg of tomatoes at $3.95 per kg.

**a** Find the total cost.
**b** Find the change Bronte will receive from a $20 note.

**3** Mark started the month with $1650 in his bank account. He made deposits of $380 and $725.50 and withdrew $880. How much was left in Mark's account?

**4** An unloaded truck has a mass of 6550 kg. It is loaded with eight boxes, each weighing 124 kg. What is the total mass of the truck and the boxes?

**5** Salma needs to cut a 9.6 m length of rope into 4 equal pieces. Find the length of each piece.

**6** Hamish posted 25 Christmas cards to his friends. If the stamps were 75c each, how much did he spend on stamps?

**7** An orchard has 1288 trees arranged in 56 rows. How many trees are in each row?

**8** A train takes 15 hours to travel 1128 km. What is its average speed in km/h?

**9** Chloe bought 60 L of petrol at 142.9 c per litre. How much did she pay for the petrol?

**10** Nelson Anglican College has the following numbers of students in each Year level.

| Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 |
|---|---|---|---|---|---|
| 122 | 128 | 123 | 131 | 117 | 94 |

The whole school is going on an excursion. If each bus can carry 55 people, how many buses will be needed?

**11** The manager of a sports store purchased 32 tennis racquets for $79.60 each and sold them for $120.80 each.

**a** Find the profit made on each racquet.
**b** Find the total profit.

**12** A batsman scored the following runs over 5 cricket innings.

27 4 123 66 47

Find the batsman's average score.

## 2 Integers

### Example 3

| Question | Calculator steps | | Answer |
|---|---|---|---|
| | Casio | Sharp | |
| $-4 + 9$ | (–) 4 + 9 = | +/– 4 + 9 = | 5 |
| $17 \times (-2)$ | 17 × (–) 2 = | 17 × +/– 2 = | −34 |
| $18 - (-3) \times 4$ | 18 – (–) 3 × 4 = | 18 – +/– 3 × 4 = | 30 |

**EXERCISE 2** ANSWERS ON P. 594

### Integers

**1** Calculate each expression.

| | | | | | |
|---|---|---|---|---|---|
| **a** | $-5 + 12$ | **b** | $-6 - 3$ | **c** | $-3 \times 4$ |
| **d** | $16 \div (-2)$ | **e** | $12 - (-3)$ | **f** | $-19 + 4$ |
| **g** | $-25 \times (-3)$ | **h** | $-55 \div (-11)$ | **i** | $8 - 12 + (-1)$ |
| **j** | $-3 + 7 - 2 - (-5)$ | **k** | $6 \times (-2) \times 8$ | **l** | $-18 \div (-2) \times 5$ |
| **m** | $-3 \times 7 - 4$ | **n** | $(-3 + 9) \times 4$ | **o** | $80 - (-2) \times 8$ |
| **p** | $12 \times (-3) + 50$ | **q** | $64 \div (-8) \times 2$ | **r** | $27 - (-3) \times (-4)$ |
| **s** | $18 \times (-5 + 3)$ | **t** | $-14 - 3 \times (-8)$ | | |

## 3 Powers and roots

Look for these keys on your calculator: $x^2$ $x^3$ $\sqrt{\ }$ $\sqrt[3]{\ }$

You may need to use the SHIFT or 2ndF key.

### Example 4

| Question | Calculator steps | Answer |
|---|---|---|
| $16^2$ | 16 $x^2$ = | 256 |
| $11^3$ | 11 $x^3$ = | 1331 |
| $\sqrt{196}$ | $\sqrt{\ }$ 196 = | 14 |
| $\sqrt[3]{4913}$ | $\sqrt[3]{\ }$ 4913 = | 17 |

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**EXERCISE 3** ANSWERS ON P. 594

## Powers and roots

**1** Calculate each expression.

**a** $14^2$ **b** $23^2$ **c** $6^3$ **d** $1.2^3$

**e** $5.13^2$ **f** $101^2$ **g** $2.04^2$ **h** $19^3$

**i** $\sqrt{676}$ **j** $\sqrt{21\,904}$ **k** $\sqrt[3]{729}$ **l** $\sqrt{6^2 \times 7^2}$

**2** Evaluate each expression, correct to one decimal place.

**a** $\sqrt{24}$ **b** $\sqrt{101}$ **c** $\sqrt{11 \times 2}$ **d** $\sqrt[3]{100}$

**3** Calculate each expression.

**a** $5^2 - 3^2$ **b** $16^2 - 10^2$ **c** $\sqrt{6} \times \sqrt{6}$ **d** $\sqrt{25 \times 4}$

# 4 Fractions

Casio calculators have 2 ways of entering and displaying fractions: MATH mode or LINE mode. MATH mode shows fractions more realistically as it allows you to enter the numerator and denominator into 2 blank spaces on the calculator's screen, while LINE mode shows the fraction in a line (for example, 1 ⌟ 3) and makes the fraction key act like a vinculum (fraction bar). For MATH mode, use the arrow keys to move the cursor to the spaces to enter the numerator and denominator. Press SHIFT MODE to change between MATH I/O and LINE I/O (input/output). When MATH mode is selected, 'Math' appears on the calculator display. To ensure that mixed numeral answers are not converted to improper fractions, press SHIFT MODE and the down arrow to choose 'ab/c'.

## Example 5

### Converting fractions

| Question | Calculator steps | | Answer |
|---|---|---|---|
| | Casio LINE mode | Sharp | |
| Simplify $\frac{16}{20}$ | 16 $\square\!\square$ 20 = | 16 $a^{b/c}$ 20 = | $\frac{4}{5}$ |
| Change $1\frac{3}{4}$ to an improper fraction | 1 $\square\!\square$ 3 $\square\!\square$ 4 = (SHIFT S⇔D) | 1 $a^{b/c}$ 3 $a^{b/c}$ 4 = 2ndF $a^{b/c}$ | $\frac{7}{4}$ |
| Change $\frac{19}{4}$ to a mixed numeral | 19 $\square\!\square$ 4 = | 19 $a^{b/c}$ 4 = | $4\frac{3}{4}$ |
| Change $\frac{3}{4}$ to a decimal | 3 $\square\!\square$ 4 = S⇔D or 3 ÷ 4 = | 3 $a^{b/c}$ 4 = $a^{b/c}$ or 3 ÷ 4 = | 0.75 |
| Change 1.7 to a fraction | 1.7 = $\square\!\square$ | 1.7 = $a^{b/c}$ | $1\frac{7}{10}$ |

S⇔D converts an answer between standard fraction and decimal forms. SHIFT S⇔D or 2ndF $a^{b/c}$ converts an answer between mixed numeral and improper fraction forms.

## Example 6

### Operations with fractions

| Question | Calculator steps | | Answer |
|---|---|---|---|
| | Casio | Sharp | |
| $\frac{1}{2}+\frac{1}{3}$ | 1 $\square\!\!\square$ 2 + 1 $\square\!\!\square$ 3 = | 1 $a^{b/c}$ 2 + 1 $a^{b/c}$ 3 = | $\frac{5}{6}$ |
| $\frac{5}{7}-\frac{2}{3}$ | 5 $\square\!\!\square$ 7 − 2 $\square\!\!\square$ 3 = | 5 $a^{b/c}$ 7 − 2 $a^{b/c}$ 3 = | $\frac{1}{21}$ |
| $\frac{3}{5}\times\frac{2}{7}$ | 3 $\square\!\!\square$ 5 × 2 $\square\!\!\square$ 7 = | 3 $a^{b/c}$ 5 × 2 $a^{b/c}$ 7 = | $\frac{6}{35}$ |
| $\frac{4}{5}\div\frac{2}{3}$ | 4 $\square\!\!\square$ 5 ÷ 2 $\square\!\!\square$ 3 = | 4 $a^{b/c}$ 5 ÷ 2 $a^{b/c}$ 3 = | $1\frac{1}{5}$ |

## Example 7

### Mixed operations with fractions

| Question | Calculator steps | Answer |
|---|---|---|
| $\frac{13+7}{9\times2}$ | ( 13 + 7 ) ÷ ( 9 × 2 ) = | 1.1111... |
| | or | |
| | ( 13 + 7 ) $\square\!\!\square$ (or $a^{b/c}$) ( 9 × 2 ) = | $1\frac{1}{9}$ |

**EXERCISE 4** ANSWERS ON P. 594

## Fractions

**1** Simplify each fraction.

**a** $\frac{20}{32}$ **b** $\frac{40}{85}$ **c** $\frac{45}{72}$

**d** $\frac{112}{126}$ **e** $\frac{84}{100}$ **f** $\frac{48}{192}$

**2** Convert each mixed numeral into an improper fraction.

**a** $1\frac{7}{8}$ **b** $5\frac{2}{9}$ **c** $10\frac{3}{4}$

**3** Convert each improper fraction into a mixed numeral.

**a** $\frac{20}{9}$ **b** $\frac{44}{5}$ **c** $\frac{18}{8}$

**4** Convert each fraction into a decimal.

**a** $\frac{1}{2}$ **b** $\frac{4}{5}$ **c** $\frac{7}{8}$

**d** $\frac{9}{25}$ **e** $\frac{34}{200}$ **f** $\frac{5}{9}$

**5** Convert each decimal into a fraction in its simplest form.

**a** 0.35 **b** 2.04 **c** 0.001

**d** 0.365 **e** 1.06 **f** 0.325

**6** Simplify each expression.

**a** $\frac{3}{5}+\frac{1}{4}$ **b** $\frac{4}{7}+\frac{1}{2}$ **c** $\frac{2}{3}-\frac{3}{5}$ **d** $\frac{1}{3}\times\frac{4}{7}$

**e** $\frac{5}{7}\div\frac{15}{28}$ **f** $\frac{5}{6}-\frac{5}{8}$ **g** $\frac{9}{10}+\frac{2}{3}$ **h** $\frac{7}{8}\times\frac{5}{12}$

**i** $\frac{7}{8}\div\frac{1}{2}$ **j** $24\div1\frac{1}{4}$ **k** $5\frac{1}{4}+1\frac{2}{5}$ **l** $9\frac{7}{8}-1\frac{1}{3}$

**m** $5\frac{1}{4}\times2\frac{3}{7}$ **n** $4\frac{2}{3}\div\frac{2}{3}$ **o** $\frac{8}{9}\div6$ **p** $10\frac{1}{6}\times1\frac{9}{10}$

**7** Simplify each expression.

**a** $\dfrac{12-4\times2}{18+14}$

**b** $\dfrac{6^2}{100\div4+23}$

**c** $\dfrac{9\times9-2}{\sqrt{30-5}}$

**d** $\dfrac{20\div2+8}{3\times9\times4}$

**8** Mr Pettis is at his office for $7\frac{1}{2}$ hours each day. He takes $\frac{3}{4}$ of an hour for lunch each day. How long does he work:

**a** in one day?

**b** in 5 days?