

Calculator practice

Skill 10.1 Rounding off and estimating

- Round off these numbers to one significant figure:
 - 832
 - 0.79
 - 3.812
 - 19.07
 - 321.8
 - 5810
 - 2057
 - 10.21
 - 363
 - 62.071
- Round off these numbers to two significant figures:
 - 832
 - 0.785
 - 3.812
 - 19.07
 - 321.8
 - 5810
 - 2057
 - 10.21
 - 363
 - 62.071
- Estimate the result of these calculations by first rounding them to one significant figure:
 - 38.07×19.02
 - 381×0.813
 - $582 \div 19.02$
 - 314×6.62
 - $3.8 \times 2.9 \times 8.14$
 - $23.2 \times 0.9 \times 1.1$
 - $58.12 \div 13.142 \times 1.9$
 - 3812×4.2
 - $13.02 \times 4.06 \times 701$
 - $13.07 \times 1.93 + 40.71$
 - $11.21 \times 3.98 \times 1.01$
 - $13.07 \div 5.01 + 14.6$
- Calculate the following, expressing the answer to three decimal places:
 - $\sqrt{10}$
 - 4π
 - $\frac{5+7}{9}$
 - $\sqrt{3.8}$
 - 9.046.138
 - $\frac{15 \times 12.04}{\sqrt{2}}$
 - $\frac{13.07 + 1.09}{7}$
 - $\frac{13.14 \times 6.81}{.17}$
 - $\sqrt{3.01 \times 4}$
- A small cattle truck's safe carrying capacity is $3\frac{1}{2}$ tonnes. Murray Bond's young Friesian calves weigh 180 kg.
 - How many calves be safely carried in the truck?
 - What is the weight of the load?
 - How much short of the $3\frac{1}{2}$ -tonne safety level is this load?
- William decides to purchase some Westpac Bank shares which are currently trading at \$7.32 each. If he has \$12 000:
 - How many shares can he purchase?
 - How much money will he have left?

Skill 10.2 Simple calculations

(Give answers to 3 decimal places where necessary.)

- $3.8^2 + 4.9 - 3(6.02 + 3.9)$
- $19.4 \times 3 + 16.034$
- $\frac{(3.09 - 6.3)^2}{4.3} - 11.04$
- $4.09(2 + 3.6) + 4 \times 6.093$
- $(3.04 + 6.03)^3 + \sqrt{32}$
- $\sqrt{1.04 + 3.87} - 3(2.1 + 5.07)$
- $\frac{\sqrt{9.04 - 8}}{7.02} + 3.094$

Skill 10.3 Repeating an operation

Use the constant operation function on the calculator to:

- add 3.075
- subtract 4.03
- multiply 25.3
- divide by 0.02

to each of these numbers:

{4.3, 2.09, 7.93, 18.4, 100, 6.09, 64, -11.2, -8.04, 73.02}

Skill 10.4 Fractions

- $\frac{1}{2} + \frac{1}{4} + \frac{2}{3} + \frac{5}{8}$
- $\frac{3}{7} + \frac{4}{13} - \frac{6}{14}$
- $2\frac{1}{2} \times 3\frac{1}{2} \times 6\frac{1}{4}$
- $9\frac{2}{3} + 4\frac{1}{2} \times 3\frac{1}{4}$
- $(\frac{3}{8})^2 + 4(\frac{2}{3} + \frac{1}{8})$
- $\frac{2\frac{1}{2} + 3\frac{1}{4}}{2}$
- $(15\frac{1}{3} + 2\frac{1}{4})^2 - 6 \times 3\frac{1}{8}$

Skill 10.5 Using the memory function

Use the memory function to help calculate:

- $14.03 \times 9.7 + 3.07 \times 4 - 2\pi$
- $3\pi^2 + \frac{14.09}{17} - 38.04$
- $\sqrt{14.02 + 8} - \frac{1}{\pi} + 3.07 \times 8.04$
- $15 \times 3.09 + 6\pi - 3\sqrt{18}$
- $4\sqrt{2} + \frac{5}{\sqrt{2}} + 5 \times 8.073$

Skill 10.6 Scientific notation

- $2.07 \times 10^3 \times 3.094 \times 10^{11}$
- $1.093 \times 10^{-11} \times 6.09 \times 10^{13}$
- $\frac{1.387 \times 10^{14}}{6.09 \times 10^5}$
- $\frac{5.073 \times 10^{-4}}{2 \times 10^{-6}}$

$$5 \frac{1.382 \times 10^{13}}{2.2 \times 10^{-8}}$$

$$6 \frac{1.932 \times 10^{17}}{9.93 \times 10^6}$$

$$7 2 \times 10^{18} + 5 \times 10^{17}$$

$$8 3.09 \times 10^{-4} + 6 \times 10^{-3}$$

$$9 1.32 \times 10^{21} - 6 \times 10^{20}$$

$$10 4 \times 10^{-9} - 3 \times 10^{-10}$$

Skill 10.7 Reciprocals

Find the reciprocal of these numbers:

$$1 \ 1.2 \quad 2 \ 13.09 \quad 3 \ -6.2 \quad 4 \ \sqrt{2}$$

$$5 \ 2\pi \quad 6 \ 2\frac{2}{3} \quad 7 \ \frac{1}{4} \quad 8 \ 5\frac{1}{10}$$

Use the reciprocal function to help calculate:

$$9 \frac{3.094}{17.3 - 8.04 + 6} \quad 10 \frac{\pi}{3 + 6.09 + 2}$$

$$11 \frac{4\pi}{3 + \sqrt{2} + 3.09} \quad 12 \frac{14.07 \times 3}{5\sqrt{2} + 6.039}$$

Skill 10.8 Trigonometric functions

Evaluate to four decimal places:

$$1 \ \sin 23^\circ 14' \quad 2 \ \cos 36^\circ 18'$$

$$3 \ \tan 45^\circ 5' \quad 4 \ \sin 82^\circ 16'$$

$$5 \ \cos 21^\circ 32' \quad 6 \ \tan 15^\circ 18'$$

$$7 \ \sin 42^\circ 31' \quad 8 \ \cos 16^\circ 8'$$

$$9 \ \tan 61^\circ 12' \quad 10 \ \sin 12^\circ 10'$$

Find these angles, expressing them in deg/min form:

$$11 \ \sin a = 0.2 \quad 12 \ \cos a = 0.03$$

$$13 \ \tan a = 3.02 \quad 14 \ \sin a = 0.25$$

$$15 \ \cos a = 0.73 \quad 16 \ \sin a = 0.32$$

$$17 \ \cos a = 0.812 \quad 18 \ \tan a = 6.3$$

$$19 \ \tan a = 8.2 \quad 20 \ \cos a = 0.38$$

Skill 10.9 Raising a number to a power

Calculate:

$$1 \ 5^{-3} \quad 2 \ 6^{0.2} \quad 3 \ 4^{0.5} \quad 4 \ 2^{-0.3}$$

$$5 \ 3^{-2} \quad 6 \ 10^{-0.3} \quad 7 \ 52.3^{-2} \quad 8 \ \left(2\frac{1}{2}\right)^5$$

$$9 \ \left(3\frac{1}{4}\right)^{2.5} \quad 10 \ \left(6\frac{1}{8}\right)^{3.7}$$

Skill 10.10 Finding the n th root of a number

Find the:

$$(a) \ \text{cube root} \quad (b) \ 6\text{th root}$$

$$(c) \ 12\text{th root}$$

of these numbers:

$$1 \ 12 \quad 2 \ 15 \quad 3 \ 68 \quad 4 \ 93.5$$

Skill 10.11 The statistical functions

The following are scores in an algebra test by class 10A:

{53, 95, 77, 95, 92, 68, 97, 83, 97, 64, 89, 98, 64, 78, 89, 18, 57, 95, 78, 51, 31, 67, 74, 60}

Use the statistical function on the calculator to determine the

- 1 mean and
 - 2 standard deviation
- of the data.

Calculators

Skill 10.1

- 1 (a) 800 (b) 0.8 (c) 4 (d) 20
(e) 300 (f) 6000 (g) 2000 (h) 10
(i) 400 (j) 60
- 2 (a) 830 (b) 0.79 (c) 3.8 (d) 19
(e) 320 (f) 5800 (g) 2100 (h) 10
(i) 360 (j) 62
- 3 (a) 800 (b) 400 (c) 30 (d) 306
(e) 96 (f) 20 (g) 80
(h) 16 000
(i) 740 (j) 60 (k) 14 (l) 12
- 4 (a) 3.162 (b) 12.566 (c) 1.333 (d) 1.949
(e) 1.248 (f) 127.703 (g) 2.023 (h) 5,264
(i) 3.470
- 5 (a) 19 (b) 3420 kg (c) 80 kg
- 6 (a) 1639 (b) \$2.52

Skill 10.2

- 1 -10.42 2 74.234 3 -8.644
4 47.276 5 751.800 6 -19.294
7 3.239

Skill 10.3

- 1 7.375, 5.165, 11.005, 21.475, 103.075, 9.165,
67.075, -8.125, -4.965, 76.095
- 2 0.27, -1.94, 3.9, 14.37, 95.97, 2.06, 59.97, -15.23,
-12.07, 68.99
- 3 108.79, 52.877, 200.629, 465.52, 2530, 154.077,
1619.2, -283.36, -203.412, 1847.406
- 4 215, 104.5, 396.5, 920, 5000, 304.5, 3200, -560,
-402, 3651

Skill 10.4

- 1 $2\frac{1}{24}$ 2 $\frac{4}{13}$ 3 $54\frac{11}{16}$ 4 $24\frac{7}{24}$ 5 $3\frac{59}{192}$
6 $2\frac{7}{8}$ 7 $290\frac{61}{144}$

Skill 10.5

- 1 142.088 2 -7.602 3 29.057
4 52.472 5 49.557

Skill 10.6

- 1 6.405×10^{14} 2 665.637 3 2.278×10^3
4 253.65 5 6.282×10^{20} 6 1.946×10^{10}
7 2.5×10^{18} 8 6.039×10^{-3} 9 7.2×10^{20}
10 3.7×10^{-9}

Skill 10.7

- 1 0.833 2 0.076 3 0.161
4 0.707 5 0.159 6 0.375
7 4 8 0.196 9 0.203
10 0.283 11 1.675 12 3.220

Skill 10.8

- 1 0.3945 2 0.8059 3 1.0029 4 0.9909
5 0.9302 6 0.2736 7 0.6758 8 0.9606
9 1.8190 10 0.2108
11 $11^\circ 32'$ 12 $88^\circ 17'$ 13 $71^\circ 41'$ 14 $14^\circ 29'$
15 $43^\circ 7'$ 16 $18^\circ 40'$ 17 $35^\circ 42'$ 18 $80^\circ 59'$
19 $83^\circ 3'$ 20 $67^\circ 40'$

Skill 10.9

- 1 0.008 2 1.431 3 2
4 0.812 5 0.111 6 0.501
7 3.66×10^{-4} 8 97.656 9 19.042
10 817.133

Skill 10.10

- 1 (a) 2.289 (b) 1.513 (c) 1.230
2 (a) 2.466 (b) 1.570 (c) 1.253
3 (a) 4.082 (b) 2.020 (c) 1.421
4 (a) 4.539 (b) 2.130 (c) 1.460

Skill 10.11

- 1 Mean 73.64
2 Standard deviation 21.016