Calculator practice

Skill 10.1 Rounding off and estimating

1 Round off these numbers to one significant figure:

(a) 832 (b) 0.79 (c) 3.812
(d) 19.07 (e) 321.8 (f) 5810
(g) 2057 (h) 10.21 (i) 363
(j) 62.071

2 Round off these numbers to two significant figures:

(a) 832 (b) 0.785 (c) 3.812
(d) 19.07 (e) 321.8 (f) 5810
(g) 2057 (h) 10.21 (i) 363
(j) 62.071

3 Estimate the result of these calculations by first rounding them to one signiificant figure:

(a) 38.07×19.02 (b) 381×0.813
(c) $582 \div 19.02$ (d) 314×6.62
(e) $3.8 \times 2.9 \times 8.14$ (f) $23.2 \times 0.9 \times 1.1$
(g) $58.12 \div 13.142 \times 1.9$
(h) 3812×4.2 (i) $13.02 \times 4.06 \times 701$
(j) $13.07 \times 1.93 + 40.71$
(k) $11.21 \times 3.98 \times 1.01$
(l) $13.07 \div 5.01 + 14.6$

4 Calculate the following, expressing the answer to three decimal places:

(a) $\sqrt{10}$ (b) 4π (c) $\dfrac{5+7}{9}$
(d) $\sqrt{3.8}$ (e) 9.046.138
(f) $\dfrac{15 \times 12.04}{\sqrt{2}}$ (g) $\dfrac{13.07 + 1.09}{7}$
(h) $\dfrac{13.14 \times 6.81}{17}$ (i) $\sqrt{3.01 \times 4}$

5 A small cattle truck's safe carrying capacity is $3\frac{1}{2}$ tonnes. Murray Bond's young Friesian calves weigh 180 kg.

(a) How many calves be safely carried in the truck?
(b) What is the weight of the load?
(c) How much short of the $3\frac{1}{2}$-tonne safety level is this load?

6 William decides to purchase some Westpac Bank shares which are currently trading at $7.32 each. If he has $12 000:

(a) How many shares can he purchase?
(b) How much money will he have left?

Skill 10.2 Simple calculations

(Give answers to 3 decimal places where necessary.)

1 $3.8^2 + 4.9 - 3(6.02 + 3.9)$
2 $19.4 \times 3 + 16.034$
3 $\dfrac{(3.09 - 6.3)^2}{4.3} - 11.04$
4 $4.09(2 + 3.6) + 4 \times 6.093$
5 $(3.04 + 6.03)^3 + \sqrt{32}$
6 $\sqrt{1.04 + 3.87} - 3(2.1 + 5.07)$
7 $\dfrac{\sqrt{9.04 - 8}}{7.02} + 3.094$

Skill 10.3 Repeating an operation

Use the constant operation function on the calculator to:

1 add 3.075 2 subtract 4.03
3 multiply 25.3 4 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

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

Skill 10.5 Using the memory function

Use the memory function to help calculate:

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

Skill 10.6 Scientific notation

1 $2.07 \times 10^3 \times 3.094 \times 10^{11}$
2 $1.093 \times 10^{-11} \times 6.09 \times 10^{13}$
3 $\dfrac{1.387 \times 10^{14}}{6.09 \times 10^5}$ 4 $\dfrac{5.073 \times 10^{-4}}{2 \times 10^{-6}}$

5 $\dfrac{1.382\times10^{13}}{2.2\times10^{-8}}$ 6 $\dfrac{1.932\times10^{17}}{9.93\times10^{6}}$

7 $2\times10^{18}+5\times10^{17}$

8 $3.09\times10^{-4}+6\times10^{-3}$

9 $1.32\times10^{21}-6\times10^{20}$

10 $4\times10^{-9}-3\times10^{-10}$

Skill 10.7 Reciprocals

Find the reciprocal of these numbers:

1 1.2 2 13.09 3 −6.2 4 $\sqrt{2}$

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

Use the reciprocal function to help calculate:

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

11 $\dfrac{4\pi}{3+\sqrt{2}+3.09}$ 12 $\dfrac{14.07\times3}{5\sqrt{2}+6.039}$

Skill 10.8 Trigonometric functions

Evaluate to four decimal places:

1 sin 23°14' 2 cos 36°18'

3 tan 45°5' 4 sin 82°16'

5 cos 21°32' 6 tan 15°18'

7 sin 42°31' 8 cos 16°8'

9 tan 61°12' 10 sin 12°10'

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

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

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

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

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

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

Skill 10.9 Raising a number to a power

Calculate:

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

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

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

Skill 10.10 Finding the *n*th root of a number

Find the :

(a) cube root (b) 6th root

(c) 12th root

of these numbers:

1 12 2 15 3 68 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, 63, 72, 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°32' 12 88°17' 13 71°41' 14 14°29'
15 43°7' 16 18°40' 17 35°42' 18 80°59'
19 83°3' 20 67°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