

using a Calculator

Calculators: Fractions

A Calculate:

- | | | |
|---|--|--|
| 1 $\frac{2}{3} + \frac{1}{4} - \frac{1}{8} + 2\frac{1}{2}$ | 2 $5\frac{1}{8} \times 6\frac{1}{4} \times 5\frac{2}{3}$ | 3 $6\frac{1}{4}(2\frac{1}{2} + 3\frac{1}{2} - 1\frac{1}{4})$ |
| 4 $(\frac{5}{9})^2 + 6\frac{1}{4} - 2\frac{1}{8}$ | 5 $2(5\frac{1}{2} + 2\frac{1}{3}) - 4\frac{1}{3} + 1\frac{1}{2}$ | 6 $\frac{6\frac{1}{8} + 2\frac{1}{4}}{3\frac{1}{2}}$ |
| 7 $9\frac{2}{3}(3\frac{1}{2} - 1\frac{1}{4} - 2\frac{1}{5})$ | 8 $6\frac{1}{8} \times 3\frac{1}{9} \times 3\frac{1}{4}$ | 9 $6\frac{2}{3} + \frac{1}{2} + 5\frac{1}{2} - 3\frac{1}{8}$ |
| 10 $\frac{5\frac{1}{3} - \frac{2}{9} + \frac{3}{8}}{\frac{1}{2}}$ | | |

B Calculators: Using the memory function

Use the memory function to help calculate to 2 decimal places:

- | | |
|---|---|
| 1 $16.04 \times 3.09 + 4.09 \times 3 \times 7 \times 8$ | 2 $13.04 \times 3.02 + 4.07 \div 2.07$ |
| 3 $16.04^2 + 3 \times 2.043 - 3.07 \times 2$ | 4 $15.02^2 + 4.02 \times 3 + 4.07 \times 3$ |
| 5 $\sqrt{2.3 + 6} - 3.8^2$ | 6 $2\pi + 3 \times 6.08 - 7.2^2$ |
| 7 $6\pi^2 + 7.03 + 6 \times 0.095$ | 8 $5\sqrt{3} + 3 \times 0.0185 - 6.03^2$ |
| 9 $\frac{2}{\pi} - 8.02^2 + 3 \times 4.09$ | 10 $8\sqrt{5} + 3\sqrt{2} + 4\sqrt{3}$ |
| 11 $6\sqrt{3} + 0.014^2 + 6 \times 0.01$ | 12 $5\sqrt{6} - 3(4.02 + 8.4)^2$ |

C Calculators: Scientific notation

Calculate:

- | | |
|---|--|
| 1 $6.03 \times 10^4 \times 8.04 \times 10^{12}$ | 2 $7.03 \times 10^4 \times 10^{-12} \times 10^{-13}$ |
| 3 $3.07 \times 10^9 \times 5 \times 10^{10}$ | 4 $1.73 \times 10^{-4} \times 6 \times 10^{11}$ |
| 5 $6.023 \times 10^{-9} \times 3.2 \times 10^{-12}$ | 6 $1.43 \times 10^9 + 6.3 \times 10^8 - 9.4 \times 10^{10}$ |
| 7 $8.6 \times 10^{11} \div 4.3 \times 10^6$ | 8 $3.8 \times 10^{12} \div 2 \times 10^8 \times 1.38 \times 10^9$ |
| 9 $4.09 \times 10^{-4} + 2 \times 10^4 \times 6.3 \times 10^{18}$ | 10 $1.4 \times 10^{-19} \div 7 \times 10^{10} \times 5.02 \times 10^{-16}$ |

D Calculators: Reciprocals

1 Find the reciprocals of these numbers to 2 decimal places:

- | | | | |
|----------------|-----------|--------------------|--------------------|
| (a) 12.04 | (b) π | (c) $5\frac{1}{8}$ | (d) $6\frac{1}{3}$ |
| (e) $\sqrt{2}$ | (f) 13.02 | (g) $4\frac{1}{4}$ | (h) -5.3 |
| (i) 7.03 | (j) 19.04 | | |

2 Use the reciprocal function to help calculate to 3 decimal places:

- | | | | |
|---|---------------------------------|------------------------------------|----------------------------------|
| (a) $\frac{4}{2 + \pi + 3}$ | (b) $\frac{5.05}{7 + 4.03 + 6}$ | (c) $\frac{6}{\sqrt{2} + 3 + 2.4}$ | (d) $\frac{7}{2\sqrt{3} + 6.03}$ |
| (e) $\frac{14.02 \times 3}{\sqrt{3} + 5 + 6.2}$ | | | |

E Calculators: Trigonometric functions

Determine the following to 4 decimal places:

- | | | | |
|------------------------|------------------------|------------------------|------------------------|
| 1 $\sin 13^\circ 17'$ | 2 $\cos 14^\circ 21'$ | 3 $\tan 13^\circ 14'$ | 4 $\cos 28^\circ 14'$ |
| 5 $\sin 38^\circ 15'$ | 6 $\cos 77^\circ 12'$ | 7 $\tan 13^\circ 14'$ | 8 $\tan 88^\circ 15'$ |
| 9 $\sin 79^\circ 15'$ | 10 $\cos 42^\circ 15'$ | 11 $\sin 19^\circ 12'$ | 12 $\sin 18^\circ 20'$ |
| 13 $\tan 21^\circ 18'$ | 14 $\sin 81^\circ 32'$ | 15 $\cos 86^\circ 14'$ | |

F Calculators: Raising a number to a power

Calculate to 3 decimal places:

- | | | | |
|---------------------|--------------------|-------------------|--------------------|
| 1 $4^{-0.3}$ | 2 $5^{0.2}$ | 3 $6^{2.8}$ | 4 $(9.3)^{0.2}$ |
| 5 $(18.2)^{5.2}$ | 6 $(3.8)^{1.8}$ | 7 $(1.08)^{6.3}$ | 8 $(4.2)^{0.8}$ |
| 9 $(6.3)^{1.2}$ | 10 $-(-1.4)^{0.6}$ | 11 $(2.81)^{0.4}$ | 12 $(100.2)^{1.2}$ |
| 13 $-(-2.04)^{2.6}$ | 14 $(19.2)^{1.5}$ | 15 $(3.8)^{2.7}$ | 16 $(9.02)^{4.2}$ |

G Calculators: Finding the n th root of a number

Find the cube root, fourth root, sixth root and tenth root of these numbers to 3 decimal places:
(16, 28.2, 15.09, 1000, 9050)

H Calculators: Using the statistical functions

The following are test scores (%) in a trigonometry text by a group of students:

(38, 49, 82, 99, 87, 93, 74, 39, 58, 67, 84, 73, 66, 72, 81, 59, 83, 27, 50, 62, 48, 67, 78, 84, 90, 85, 92, 55, 63, 70)

Use the statistical function on the calculator to find the:

- 1 mean
- 2 standard deviation values of the test scores.

I Calculators: Simple calculations

Calculate the following to two decimal places:

1 $4.09^2 + 1.02 + 5(6.03 - 11.4)$

2 $3 \times 2.07 + 15.03 - 12.09$

3 $\frac{(2.07 + 5.3)^2}{3.9} - 17.3$

4 $\sqrt{19.3 + 8.01} + 6.3 + 12.9$

5 $\frac{2\sqrt{19.4}}{3} + 11.7$

6 $\sqrt{\frac{2(9.3 + 4)}{3}} - 12.3$

7 $\frac{15.2^2 + 4\sqrt{2 + 9.1}}{3.8}$

8 $\frac{14.02^2}{3.9} + \sqrt{2\pi} - 11$

9 $\frac{5\sqrt{8.3 + 2}}{7} + 11.02 - 6.03$

10 $15.02(3 \times 9.02)^2 + 3.094$

J Calculators: Repeating an operation on a range of numbers

Complete the following operations on this data set:

{15.8, -3.2, 19.4, -100.2, 19.7, 38.4, 42.09, 15.07, -11.6, -12.8, -140.3}

1 multiply them by -2

2 divide them by 0.4

3 add 6.07 to them

4 subtract 3.2 from them

Calculators Answers

- A**
- | | | | |
|---------------------|----------------------|---------------------|----------------------|
| 1 $3\frac{7}{24}$ | 2 $181\frac{49}{96}$ | 3 $29\frac{11}{16}$ | 4 $4\frac{281}{648}$ |
| 5 $12\frac{5}{6}$ | 6 $2\frac{11}{28}$ | 7 $\frac{29}{60}$ | 8 $61\frac{67}{72}$ |
| 9 $15\frac{17}{24}$ | 10 $10\frac{35}{36}$ | | |

- B**
- | | | |
|----------|----------|------------|
| 1 736.68 | 2 41.35 | 3 257.27 |
| 4 249.87 | 5 -11.56 | 6 -27.32 |
| 7 66.82 | 8 -27.65 | 9 -51.41 |
| 10 29.06 | 11 10.45 | 12 -450.52 |

- C**
- | | |
|-----------------------------|----------------------------|
| 1 4.84812×10^{17} | 2 7.03×10^{-21} |
| 3 1.535×10^{20} | 4 1.038×10^{-14} |
| 5 1.92736×10^{-20} | 6 -9.194×10^{10} |
| 7 2×10^5 | 8 2.622×10^{13} |
| 9 1.28835×10^{11} | 10 1.004×10^{-45} |

- D**
- | | | |
|-------------|-----------|-----------|
| 1 (a) 0.08 | (b) 0.32 | (c) 0.20 |
| (d) 0.16 | (e) 0.71 | (f) 0.08 |
| (g) 0.24 | (h) -0.19 | (i) 0.14 |
| (j) 0.05 | | |
| 2 (a) 0.491 | (b) 0.297 | (c) 0.881 |
| (d) 0.737 | (d) 3.252 | |

- E**
- | | | |
|-----------|-----------|-----------|
| 1 0.2298 | 2 0.9688 | 3 0.2352 |
| 4 0.8810 | 5 0.6191 | 6 0.2215 |
| 7 0.2352 | 8 32.7303 | 9 0.9825 |
| 10 0.7402 | 11 0.3289 | 12 0.3145 |
| 13 0.3899 | 14 0.9891 | 15 0.0657 |

- F**
- | | | |
|---------------|-----------------|------------|
| 1 0.660 | 2 1.380 | 3 150.947 |
| 4 1.562 | 5 3 567 559.438 | 6 11.056 |
| 7 1.624 | 8 3.152 | 9 9.104 |
| 10 -1.224 | 11 1.512 | 12 251.792 |
| 13 -13.022 | 14 84.130 | 15 36.763 |
| 16 10 277.026 | | |

G

	<i>Cube root</i>	<i>Fourth root</i>	<i>Sixth root</i>	<i>Tenth root</i>
16	2.520	2	1.587	1.320
28.2	3.044	2.304	1.745	1.396
15.09	2.471	1.971	1.572	1.312
1000	10	5.623	3.162	1.995
9050	20.839	9.754	4.565	2.487

- H**
- | | |
|---------|---------|
| 1 69.17 | 2 18.06 |
|---------|---------|

- I**
- | | | |
|--------------|---------|---------|
| 1 0.90 | 2 9.15 | 3 -4.15 |
| 4 24.43 | 5 14.64 | 6 -9.32 |
| 7 64.31 | 8 41.91 | 9 7.28 |
| 10 11 001.39 | | |

- J**
- | | | |
|---|--|--|
| 1 -31.6, 6.4, -38.8, 200.4, -39.4, -76.8, -84.18, -30.14, 23.2, 25.6, -280.6 | | |
| 2 39.5, -8, 48.5, -250.5, 49.25, 96, 105.225, 37.675, -29, -32, -350.75 | | |
| 3 21.87, 2.87, 25.47, -94.13, 25.77, 44.47, 48.16, 21.14, -5.53, -6.73, -134.23 | | |
| 4 12.6, -6.4, 16.2, -103.4, 16.5, 35.2, 38.89, 1187, -14.8, -16, 143.5 | | |