

### Q1-2

1

Check your calculator is in "degree" mode (usually a *D* in little letters at the top of the screen)  
Input this into your calculator

1.931851653 [2]

Seeing "1.9318" scores full marks (to allow for different calculator displays)

2a

Input this into your calculator

4.580069567 [2]

Seeing "4.5800" scores full marks (to allow for different calculator displays)

2b

Write out the number with its first four decimal digits

4.5800

Check if the 4th decimal digit needs rounding up (by seeing if the 5th decimal digit is 5 or more)

4.58006  
6 ≥ 5 so 0 rounds up to 1

4.5801 [1]

### Q3-4

3

Input this into your calculator

1.409102748 [2]

Seeing "1.4091" scores full marks (to allow for different calculator displays)

4a

Check your calculator is in "degree" mode (usually a *D* in little letters at the top of the screen)  
Input this into your calculator

2.75603957 [2]

Seeing "2.7560" scores full marks (to allow for different calculator displays)

4b

Write out the number with its first two decimal digits

2.75

Check if the 2nd decimal digit needs rounding up (by seeing if the 3rd decimal digit is 5 or more)

2.756  
6 ≥ 5 so 5 rounds up to 6

2.76 [1]

### Q5-6

5

Type the equation in to your calculator as seen, your calculator should have a button which looks like  $\times 10^x$  or similar to help input standard form

You could also use brackets to help you:

$$\frac{(5.6 \times 10^4) + (7 \times 10^3)}{(2.8 \times 10^{-3})} = 22\,500\,000$$

[]

Write in standard form

**2.25 × 10<sup>7</sup>** []

6

Type the equation in to your calculator as seen, your calculator should have a button which looks like  $\times 10^x$  or similar to help input standard form

You could also use brackets to help you:

$$\frac{(3 \times 10^5) - (2.7 \times 10^4)}{(6 \times 10^{-2})} = 4\,550\,000$$

[]

Write in standard form

**4.55 × 10<sup>6</sup>** []

### Q7-8

7

You should be able to type this expression into your calculator directly using the fraction button  $\frac{\square}{\square}$  and brackets

$$4 \left( 1 - \frac{22}{57} + \frac{22}{85} - \frac{22}{105} + \frac{22}{117} - \frac{22}{242} \right) = 3.041839619\dots$$

[]

Show that this is within 0.1 of 3.14

Use the  $\frac{\square}{\square}$  button to help here;  $3.14 - \frac{\square}{\square}$

**3.14 - 3.041839619 = 0.09816038107 which is less than 0.1** []

*Full working must be shown*

8

Type the expression in to your calculator as seen, your calculator should have a button which looks like  $\times 10^x$  or similar to help input standard form

You could also use brackets to help you:

$$\frac{(3.2 \times 10^3) + (5.1 \times 10^{-2})}{(4.3 \times 10^{-4})} = 7\,441\,979.07$$

[]

Write in standard form, correct to 3 significant figures; you can round after the '4'; 7 441 979.07.

**7.44 × 10<sup>6</sup>** []

### Q9-10

9

Use the fraction, root and power buttons on your calculator to type the expression into your calculator in one go.

$$\frac{\sqrt{29 - 3 \times 32^{0.4}}}{3} = 1.37438654\dots$$

1.37 (3 s.f.) [1]

10

Perform the calculation using your calculator.

Use the fraction button on your calculator and use the arrow keys to move around the calculator screen to make it look just like the given calculation.

$$\frac{16.379 - 0.879}{4.2} \times 1.241 = 4.579880\dots$$

[1]

Round your answer to 2 s.f.

4.6 [1]

### Q11-13

11

Perform the calculation using your calculator.

Use the fraction, root and power buttons on your calculator and use the arrow keys to move around the calculator screen to make it look just like the given calculation.

$$\sqrt{256^{0.25} + 4 \times 8}$$

6 [1]

12

Type into calculator exactly as seen and write down entire calculator display

Be careful with the powers and make sure all decimal points are in the right places

$$\sqrt[3]{8.1^2 - 1.3^{0.8}} = 4.007827504$$

round to 3 significant figures for final answer

4.01 [1]

Between 4.007 and 4.008 receives mark

13

Use a calculator here, but be careful to use cube root rather than square root

$$\sqrt[3]{2^3 + 2} = 2.15443469\dots$$

2.15 [1]

Rounded to 3 significant figures

### Q14

14

Use the root and power buttons on your calculator to type the expression into your calculator

You'll need to use the arrow keys to move around the calculator screen to make it look just like the given calculation

$$\sqrt{17.8 - 1.3^{2.5}} = 2.292108\dots$$

2.29 (3 s.f.) [1]

Writing any more than 3 s.f. would still gain the mark