1. $m = \dfrac{\sqrt{s}}{t}$ $s = 3.47$ correct to 3 significant figures

$t = 8.132$ correct to 4 significant figures

By considering bounds, work out the value of m to a suitable degree of accuracy.
Give a reason for your answer.

working out bounds ↘

$3.465 \leqslant S < 3.475$ ①
$8.1315 \leqslant t < 8.1325$

$LB \; m = \dfrac{\sqrt{3.465}}{8.1325} = 0.2288903839$ ② ①

$UB \; m = \dfrac{\sqrt{3.475}}{8.1315} = 0.2292486243$

$x = \dfrac{big \; number}{small \; number}$
x will be a big number

$x = \dfrac{small \; number}{big \; number}$
x will be a small number

Highest degree of accuracy
where UB and LB round to
Same number

Here round to 3dp so $m = 0.229$ ①

Since both the LB and UB round to 0.229

2. Use your calculator to work out $\sqrt{\dfrac{\sin 25° + \sin 40°}{\cos 25° - \cos 40°}}$

(a) Write down all the figures on your calculator display.

(on calculator press
√ and a/b)   then type $\sqrt{\dfrac{\sin 25 + \sin 40}{\cos 25 - \cos 40}}$

= 2.75603957

2.75603957
2.76

.... 2.75603957 ✓✓ ....

(2)

(b) Write your answer to part (a) correct to 2 decimal places.

2.75603957

= 2.76 (2.d.p)

.... 2.76 ✓ ....

(1)

(Total for Question   is 3 marks)

3.   Work out

$$\sqrt{\frac{2.5 \times \sin 43°}{8.2^2 - 50.5}}$$

Give your answer correct to 3 significant figures.

$$\sqrt{\frac{2.5 \times \sin 43}{8.2^2 - 50.5}} = \sqrt{\frac{2.5 \times \sin 43}{16.74}} \quad ①$$

$$= 0.3191419855... \approx \underline{\underline{0.319}} \ (3 \text{ s.f.})$$

                                                          ①

.... 0.319 ....

(Total for Question   is 2 marks)

$F \quad O \quad I \quad L \leftarrow Last$

Front   Outside   Inside

$(x+5)(x-9) = x^2 - 9x + 5x - 45$

$= x^2 - 4x - 45$

②

$x^2 - 4x - 45$

$9x^2 + 6x = 3x(3x+2)$

②

$3x(3x+2)$

4. (a) Use your calculator to work out $\dfrac{29^2 - 4.6}{\sqrt{35 - 1.9^3}}$

Write down all the figures on your calculator display.

157.668255   ②

(2)

(b) Write your answer to part (a) correct to 4 significant figures.

round up

$157.6\,|\,68255$ Since ≥ 5

$= 157.7 \ (4 \, sf)$

157.7   ①

(1)