Round all answers to an appropriate degree of accuracy unless specifically stated

1. A school roll is expected to rise by 3% for the next 3 years and then fall by 4% for the following 2 years.

a. If the initial roll of the school is 715, what will the roll be after these changes?

b. Calculate the overall percentage increase or decrease over this time.

2. Evaluate a^x when $a = 81$ and $x = -\frac{3}{4}$.

3. Find the equation of the straight line joining the points (-4,3) and (1,4).

4. The weights, in kilograms, of six boxes were recorded as:

$$34 \quad 37 \quad 41 \quad 32 \quad 44 \quad 40$$

a. Calculate the mean and standard deviation of these weights.

b. The mean of another 6 boxes is 41kg and the standard deviation is 2.14

   i) Write down a valid comment about the weight of each set of boxes

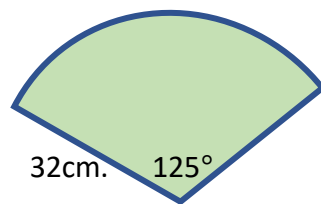   ii) Write down a second valid statement about the consistency of the weights in each set.

5a. Fully factorise

$$3p^2 - 48$$

b. Hence, simplify

$$\frac{3p^2 - 48}{2p^2 - 5p - 12}$$

6. A decorative fan is being manufactured. Its dimensions are shown below.

32cm.   125°

a. Calculate the perimeter of the fan.

b. The material used for the fan costs £2.15 per 50cm². Calculate the cost of the material used to make the fan.

   Show clearly that the cost of the material for one fan is £49.45

c. After selling them for this price, Alice makes a 12% profit on her sales. How much did she buy them for?