

### Limits of Accuracy and Standard Form

1. If  $p = 3.61 \times 10^2$ ,  $q = 8.1 \times 10^1$  and  $r = 1.35 \times 10^{-1}$ , work out the following in standard form, giving your answer in standard form to 3 significant figures, where necessary:

a)  $p - q$

c)  $\frac{q+r}{p}$

b)  $\frac{pr}{q^2}$

d)  $\sqrt{p} \div 3r$

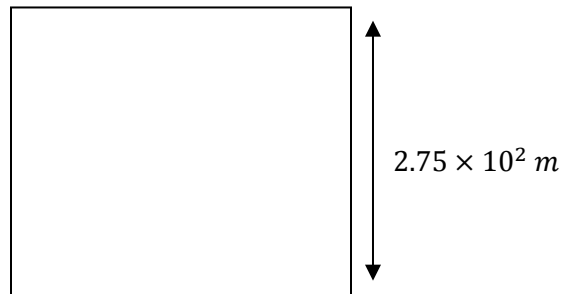
2. If  $a = 3.4$ ,  $b = 5.6$  and  $c = 6.9$ , each correct to 2 significant figures, find the:

a) upper bound of  $b^2 - a^2$

b) lower bound of  $\frac{2b+a}{c-b}$

c) upper bound of  $ab + ac + bc$

3.



Calculate the perimeter and area of the square above in standard form, giving your answers in standard form.

4. Mrs. Jones walks around a rectangular lawn 24.5 metres long and 16.7 metres wide every morning. The lawn has a fountain in the middle of it. The fountain has a circular base with a radius of 1.5 metres. If all measurements given are correct to 1 decimal place, calculate:

a) the maximum distance walked by Mrs. Jones each morning.

b) the smallest possible area of the base of the fountain.

c) the maximum area of the lawn not covered by the fountain.

[Hint: Draw a sketch of the lawn, highlighting the area covered by the fountain.]