

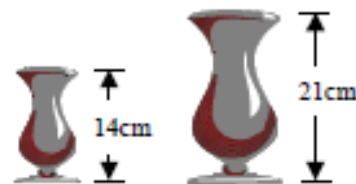
Show all working – Calculator ONLY required for Qu 4.

Marks

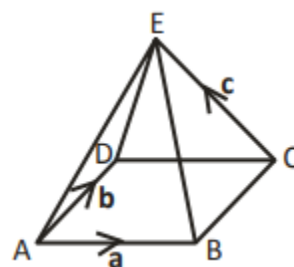
1. For the vectors $\underline{u} = \begin{pmatrix} 8 \\ -1 \end{pmatrix}$ & $\underline{v} = \begin{pmatrix} -2 \\ 2 \end{pmatrix}$ find:

- a) $2\underline{u} + 3\underline{v}$ (b) $|2\underline{u} + 3\underline{v}|$, express your answer as a surd in its simplest form. (4)

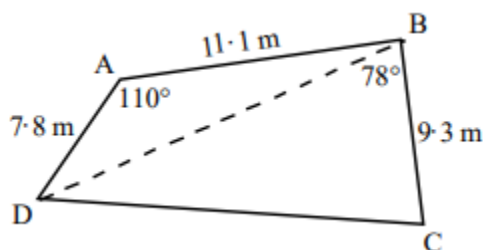
2. The flower vases opposite are mathematically similar.
To fill the small vase with water takes 400 millilitres.
How much water, in litres, is needed to fill the large vase?



3. Express the vector \overrightarrow{AE} in terms of \underline{a} , \underline{b} & \underline{c} .



4.



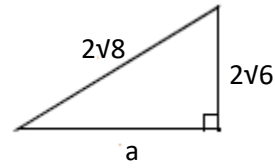
A garden, in the shape of a quadrilateral, is represented in the diagram:

Calculate the:

- a) length of the diagonal BD
b) area of the garden

(5)

5. Find the length of the missing side, a, in this right angled triangle expressing your answer as a surd in its simplest form.

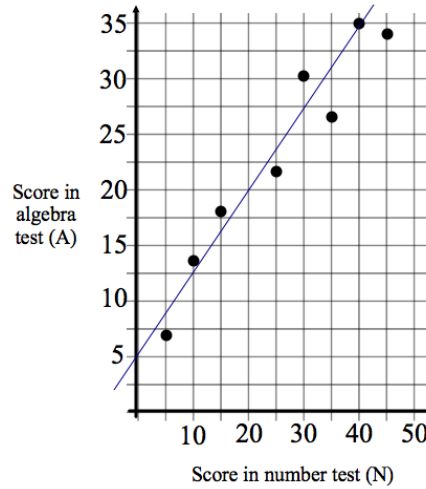


(4)

6. Simplify fully: $\frac{3a^4 \times 6b^3}{8a^2b^5}$

(3)

7. Find the equation of the line of best fit.



(4)

Total Marks: 25