ALBA MATHEMATICS
National 5 Course Revision
Task Sheet 8

1. Simplify $\sqrt{12} + \sqrt{27} - 2\sqrt{3}$

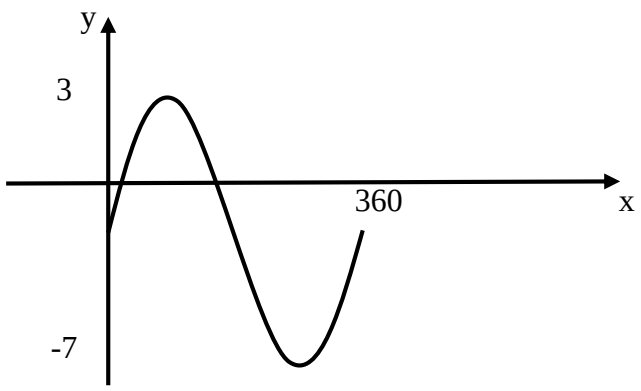
2. Solve $x^2 + 4x - 6 = 0$ correct to one decimal place.

3. A function has equation $f(x) = 27^x$. Evaluate $f(\frac{2}{3})$.

4. Solve $4\tan x + 5 = 2$ for $0° \leq x \leq 360°$.

5. A formula has equation $q = \frac{3t^2 - 5}{4}$. Change the subject of the formula to t.

6. The graph below has equation $y = a\sin x° + b$. Find the values of a and b.

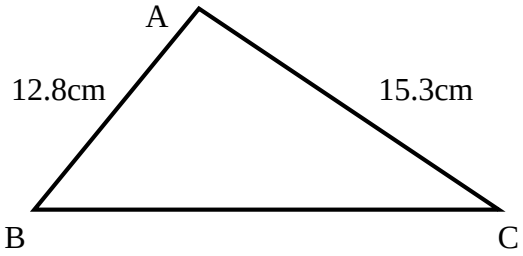


7. Solve this pair of equations **algebraically**

$$5x + 4y = -8$$
$$2x - 3y = -17$$

8. Two vectors, $\boldsymbol{u}$ and $\boldsymbol{v}$, have components $\boldsymbol{u} = \begin{pmatrix} 1 \\ 4 \\ -1 \end{pmatrix}$ and $\boldsymbol{v} = \begin{pmatrix} 2 \\ 1 \\ 5 \end{pmatrix}$. Show that $|u + v| = 5\sqrt{2}$.

9. The area of the triangle below is $87cm^2$. Calculate the size of the OBTUSE angle BAC.



10, A new cereal bar contains 28% less sugar than the original bar. If the new bar contains 9g of sugar, how many grams were in the original bar?