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Duncanrig Secondary School – Mathematics Department

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S4 National 5 Homework Exercise 8

1. Evaluate a) $38.5 - 24.5 \div 7$ **(2)**

2. Solve algebraically (i) $2 + 5x \geq 8x - 16$
   (ii) $4x - 2 \leq 3(2x + 9)$ **(7)**

3. Simplify leaving your answer as a surd $\sqrt{98} + \sqrt{2} - \sqrt{18}$ **(3)**

4. Factorise fully then simplify **(4)**

$$\frac{x^2 + 2x - 15}{2x - 6}$$

5. Simplify $\frac{5}{x+1} + \frac{3}{x-2}$ **(4)**

6. A straight line has equation y = mx + c, where m and c are constants.
   (a) The point (2, 1) lies on this line. **(1)**
   Write down an equation in m and c to illustrate this information.

   (b) A second point (5, – 8) also lies on this line. **(1)**
   Write down another equation in m and c to illustrate this information.

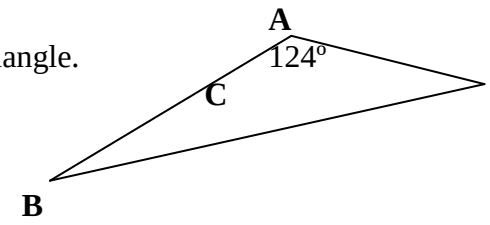
   (c) Hence calculate the values of m and c. **(3)**

   (d) Write down the gradient of this line. **(1)**

7. Six pupils handed in their essays to their English teacher. She noted the number of spelling mistakes each pupil had made. They were:-
   22, 23, 25, 29, 30, 33

   Using the formula $s = \sqrt{\dfrac{\sum x^2 - \dfrac{(\sum x)^2}{n}}{n-1}}$ Calculate the standard deviation. **(4)**

8. In triangle ABC, AB = 9.4cm, AC = 6.3cm and Angle BAC = 124º.
   a) Calculate the length of BC.
   b) Calculate the area of the triangle.



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