S5/6 National 5 Maths Homework 10

1. Find the equation of the line described below.
   a) Passing through (1,2) and (5, 6)
   b) Passing through (0,4) and (0,-3)
   c) Passing through (-3,-5) with gradient $\frac{1}{2}$
   d) Passing through (5,-1) with gradient -3

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2. By drawing the graphs of each line find the point of intersection of a) $y = x + 2$ and $y = 2x - 1$
   b) $y = x + 1$ and $y = 6 - x$

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3. Solve algebraically the simultaneous equations
   $5g + 2h = 7$
   $2g - 3h = 18$

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4. A group of teachers and pupils go to the theatre.
   There are 18 people in the group altogether.
   a) Using x to represent the number of teachers and y to represent the number of pupils construct an equation in x and y.

   Tickets cost £7 for teachers and £4 for pupils.
   The total cost is £84
   b) Construct a second equation in x and y.
   c) Find the number of pupils going to the theatre.

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5. Expand the brackets and simplify
   a) $(2a - 5)(a^2 + 2a + 4)$ b) $(g - 2)(g + 3)(g - 1)$

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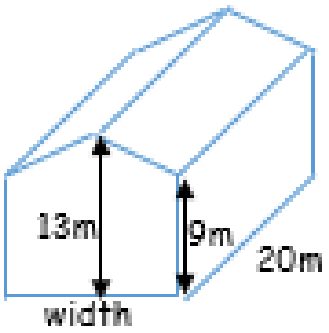
6. A factory building has a volume of 2 640 m^3
   The cross-section of the building consists of a rectangle and a triangle.

   Calculate the width of the building.



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7. $f(x) = 20 - 2x^2$
   a) Calculate f(-3).
   b) Given $f(x) = -12$, find two values for x.