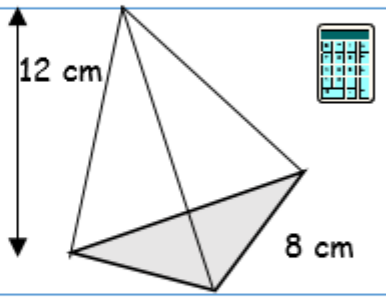
S5/6 National 5 Maths Homework 6

1. Multiply out and simplify when necessary.
   a) (x + 7)(x + 2) b) (y – 7)(y + 3) c) (h – 5)(h – 4)
   d) (2c – 7)(3c + 8) e) (5d + 4)(1 – 2d) f) $(3a + 7)^2$
   g) $(4p - 9)^2$ h) $(8h - 7)^2 + (2 - 5h)^2$
   i) (x + 5) (x^2 - 4x + 3)

2. The base of this pyramid is an equilateral triangle with its sides 8 cm long and vertical height of 12 cm

   Calculate the volume of the pyramid using V = 1/3 A h.



3. Factorise the following.
   a) 9x- 6xy b) $15p^2q - 3pq^2$ c) $16a^2$ - 9
   d) a^2 - $4b^2$ e) d^4 - 25 f) w^2 + 11w + 18
   g) m^2 - 8m + 16 h) $7d^2$ - 8d + 1

4. Using the gradient formula, find the gradient of the line between the following points:

   (a) (3, -2) and (5, 7) (b) (-4, -1) and (12, -5)

7. Write each expression in the form $(x + p)^2 + q$ ie complete the square.
   a) x^2 + 6x + 11 b) c^2 -8c – 5 c) y^2 + 4y - 10