Class Test 1

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Answer all questions. Show your working clearly.

1. Expand and simplify each of the following expressions.
   (a) $(3x + 4)(x - 2)$ [1]
   (b) $2(x - 5)(5x + 2)$ [1]

2. Expand and simplify the expression $3x^2 - 4(x + 2)^2$. [2]

3. Factorise each of the following expressions completely.
   (a) $6y^2 + 10y - 4$ [1]
   (b) $3x - 1 + 4x^2$ [1]

4. Factorise each of the following expressions completely.
   (a) $\frac{4}{7}x^2 - 2x - \frac{8}{7}$ [2]
   (b) $2.5y^2 + 2y - 0.5$ [2]

5. Expand and simplify $(2y + 1)(4y - 4) - y(2 + y)$. [2]

6. (a) Factorise $2x^2 + 12x + 10$ completely. [1]
   (b) Hence, evaluate $2(5)^2 + 12(5) + 10$. [1]

7. The area of a triangle is $(3a^2 + 5a - 8)$ cm^2.
   (a) If the height of the triangle is $(2a - 2)$ cm, show that its base is $(3a + 8)$ cm. [2]
   (b) Explain why the value of a must be greater than 1. [1]

8. Aimee has $x(x + 2)$ magazines. Tom has 2 times as many magazines as Aimee. James has 5 fewer magazines than Tom.
   (a) Write down and express, in terms of x, the number of magazines that James has. [1]
   (b) Find and simplify, in terms of x, an expression for the total number of magazines that Aimee, Tom and James have altogether. [2]