Class Test 2

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Answer all questions. Show your working clearly.

1. Expand and simplify $(x - y)^2 + \frac{1}{2}y(x + y)$. Hence, by using appropriate substitutes for x and y, find the value of $96^2 + 2(104)$. [2]

2. Expand and simplify the following expressions.
   (a) $\frac{2}{5}(2a - 1)(5 - b) + b(2 + a)$ [1]
   (b) $(x - y)(2 + 3y - x) - 2(x - 4y)$ [1]

3. Without using a calculator, evaluate the following.
   (a) 395×405 [1]
   (b) 302^2 [1]

4. Simplify the following expressions and factorise completely.
   (a) $5pq + (5p + 2q)(5p + 3q) + 3(p + q)(q - 3p)$ [1]
   (b) $\frac{1}{4}(3b + 8a)(3b - 8a) + 2a(10a - 3b)$ [2]
   (c) $\frac{1}{2}\left[-9d\left(\frac{7}{2}c + b\right) + 21a\left(\frac{1}{2}c + \frac{b}{7}\right)\right]$ [2]

5. Alice bought $(5q + 11)$ cookies at the cost of $\$\frac{3}{2}p$ each. She sold all the cookies at $\$\left(5p - \frac{9}{5}\right)$ each. Find and simplify an expression for the profit she earned, leaving your answer in terms of p and q. [2]

6. Factorise completely $9x^2 + 121 + 66x - 100y^2$. [2]

7. Expand and simplify the following expression.

$\frac{p}{2}\left[3p - 4\left(\frac{3}{4}q + \frac{1}{2}p\right)\right] - 4p\left(p - \frac{1}{2}q\right)^2$ [2]

8. Simplify the following expressions and factorise completely.

(a) $2(a + 3b)(a - b) + 3a(a + b) - 2b(a + 2b)$ [2]

(b) $\frac{3}{2}y^2 - \frac{3}{4}xy - 15\frac{3}{4}x^2$ [1]