Class Test 1

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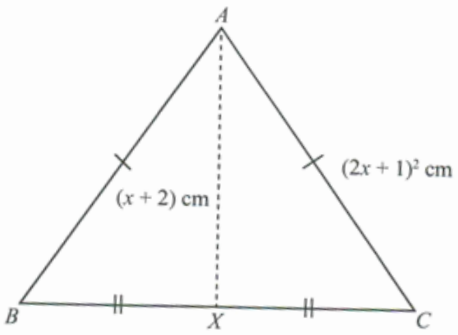
Answer all questions. Show your working clearly.

1. Factorise completely $-2x^2(4x - 7) - \frac{2}{3}x^2 - 2x$. [2]

2. Without using a calculator, evaluate the following.
   (a) 108^2 [1]
   (b) 896×904 [1]

3. Expand and simplify the following expressions.
   (a) $\left(3x - \frac{2}{3}\right)\left(\frac{1}{2}y - 4 + 2x\right) - x\left(y - \frac{1}{3}\right) + \frac{1}{3}y$ [1]
   (b) $2\left[2p\left(\frac{1}{2} - q\right) - (2p - q)\left(8 + \frac{1}{4}q\right)\right]$ [1]

4. In the diagram below, $\triangle ABC$ is an isosceles triangle such that $AB = AC$, $BX = XC$ and the perimeter of $\triangle ABC$ is $(11x^2 + 7x)$ cm. Express the area of $\triangle AXC$ in terms of x. [2]



5. Simplify the following expressions and factorise completely.

(a) $10p^2 - 34pk - 24k^2$ [1]

(b) $\frac{1}{3}x(3y - 2x) - 7y\left(y - \frac{x}{7}\right) + \frac{y^2}{3}$ [2]

6. Given that $a^2 + b^2 = 6\frac{3}{4}$ and $ab = \frac{1}{8}$, find the value of $\left(\frac{4}{3}a - \frac{4}{3}b\right)^2$. [2]

7. Simplify the following expressions and factorise completely.

(a) $2(a + b)(3a - b) + (3a + 5b)(a - 4b) - 15b\left(a + \frac{b}{3}\right)$ [2]

(b) $\frac{1}{2}y(12 - 9q) + 3p\left(\frac{4}{3} - q\right)$ [2]

(c) $\frac{1}{2}(x - 6y)(x + 2y) + (x + 2y)(x - 2y)$ [1]

8. Expand and simplify the following expression.

$5\left(\frac{4}{5}a + \frac{3}{4}b\right)^2 - 3\left(2a + \frac{b}{4}\right)\left(2a - \frac{b}{4}\right) + \frac{a^2}{5}$ [2]