Class Test 3

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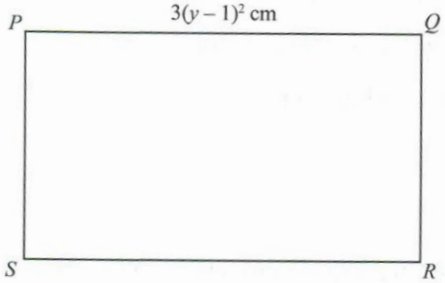
Answer all questions. Show your working clearly.

1. *PQRS* is a rectangle. The perimeter of *PQRS* is $[(3y + 1)(y - 1) + 14]$ cm. Find an expression for the area of *PQRS*, leaving your answer in terms of y. [3]



2. Expand and simplify the following expression.

$(5m - 2n)^2 - 4m(5m - 4n) + \frac{3}{5}(10m + 15n)(2m - 3n)$ [2]

3. Given that $p^2 + q^2 = 21$ and $pq = \frac{2}{3}$, find the value of $\frac{2}{7}(3p + 7q)^2 - \frac{20}{7}q\left(4q - \frac{7}{4}p\right)$. [2]

4. Expand and simplify the following expressions.

(a) $7m\left(\frac{2}{5} + 2n\right) - \frac{1}{2}\left[\left(\frac{8}{5}m - 4\right)(1 + m)\right]$ [1]

(b) $-3(x + 2y)\left(\frac{2}{3} - 5x\right) - \frac{7}{2}x\left(4y - \frac{2}{5}\right)$ [1]

5. Without using a calculator, evaluate the following.

(a) 699^2 [1]

(b) 208×192 [1]

6. Expand $x(x^2 - 1) + \frac{1}{2}(3x + 1)(x - 1) + 2x$ completely. [1]

7. Simplify the following expressions and factorise completely

(a) $10a\left(b - \frac{1}{2}y\right) - 4x + 2\left[x(y + 2) - \frac{1}{2}x(4b)\right]$ [2]

(b) $(4p - 2q)\left(p + \frac{1}{5}q\right) + \frac{6}{5}p(q + 2p)$ [2]

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

8. Simplify the following expressions and factorise completely

(a) $-4(2g - h)(h - 3g) - 2gh - 18g(h + 3g) + \frac{7}{2}h^2$ [2]

(b) $11x^2 + 42xy - 8y^2$ [1]