Unit 4 Test
MPM 2D

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Name:_____

Part A (9 marks)

[3] 1. Expand and simplify

a) $3x(x-4)$ b) $(x-2)(x+7)$ c) $(2x-3y)(2x+3y)$

[2] 2. A student squares the binomial $(2x+3)^2$ to get $4x^2+9$. Was the student correct? Use a box, a chart or algebraic reasoning to support your answer.

[2] 3. Factor fully where possible.

a) $x^2+3x-10$ b) $mx+my+2x+2y$

[2] 4. Fill in the blanks.

a) $(3x-2)(x+\_\_\_\_\_)=3x^2+\_\_\_\_\_-8$ b) $(\_\_\_\_\_+2)(\_\_\_\_\_-\_\_\_\_\_)=25x^2-\_\_\_\_\_$

Part B (12 marks)

[9] 5. Factor fully where possible.

a) $3x^3 - 18x^2 + 15x$

b) $6x^2 + 19xy - 7y^2$

c) $12m^2x + 16m^2y - 3n^2x - 4n^2y$

d) $4x^2 - 5x + 9$

[3] 6. Write a polynomial satisfying each condition:

a) Has three terms and a greatest common factor of $3b$. _____

b) Is in the form $ax^2 + bx + c$ and is not factorable. _____

c) Is a perfect square trinomial. _____

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Pt. 2

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Part A (5 marks)

[2] 7. Expand and simplify

a) $(x+6)(2x-1)$

b) $(3x+2)(4x-5)$

[3] 8. Factor fully where possible.

a) $x^2 - x - 42$

b) $x^2 - 36y^2$

c) $4x^2+12x+9$

Part B (6 marks)

[2] 9. Find **two** values of k so that the trinomial $m^2 - 7m+k$ can be factored.

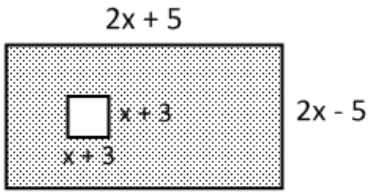
[4] 10. Factor fully where possible.

a) $2x^2y - 10xy+16y$

b) $36x^2+48x+16$

Part C (8 marks) Attempt all question in Part B before trying Part C. Show your work for full marks.

[2] 11. Write and simplify an expression for the area of the shaded region.



[4] 12. The volume of a cereal box can be represented by $V = 12x^2 - 30x + 18$.

a) Determine the expressions that represent the dimensions of the box.

b) Determine the expression for the surface area of the box.

[2] 13. Expand and simplify $(3x^2 + 4x - 5)^2$