

Math 2 – Unit Test – Simplifying Polynomial Expressions and Factoring

Name _____

(Maximum mark 100)

1. Simplify the following expressions. Remove any brackets.

[3 marks each]

a) $5x + 4x^3 + 7x^3 - 3x^2 - 9x$

b) $(6n^2 + 4n) - (2n + 8n^2 - 5n)$

c) $a^2 - a^3 + a + a - a^2$

d) $3(m+2) - 2(m-6)$

2. Remove the brackets from the following expressions

[4 marks each]

a) $3y(2x - 4y + y^2)$

b) $(4x + 3)(5x + 1)$

c) $(4x + 3)^2$

d) $8c^3(2c - 5)$

3. Factorise fully the following expressions by removing common factors

[4 marks each]

a) $15x + 10y$

b) $9a^2b - 12ab^2 + 6a^2b^2$

c) $9x^3 - 18xy$

d) $-12c - 3c^2$

4. Factorize the following trinomials

[4 marks each]

a) $n^2 + 6n + 5$

b) $z^2 - 13z + 40$

c) $x^2 - 49$

c) $t^2 - 6t - 40$

5. Solve the following quadratic equations by factoring

[6 marks each]

a) $x^2 + 9x + 8 = 0$

b) $m^2 - 6m + 9 = 0$

x = _____, _____

m = _____, _____

c) $n^2 - 12n = 27$

d) $2x^2 = -6x - 4$

n = _____, _____

x = _____, _____

6. Solve the following word problems.

a) A rectangle has a length 3 times its width. The area of the rectangle is 75cm^2 .

i) Sketch the situation [2 marks]

ii) Translate the problem into a mathematical equation [2 marks]

iii) Solve the equation in pt i) [3 marks]

iv) What are the width and length of the rectangle [1 mark]

b) Joe thinks of two numbers. His 2nd number is 7 more than his first number. The product of his two numbers is 60.

i) Translate the problem into a mathematical equation [2 marks]

ii) Solve the equation in pt i) [4 marks]

iii) What numbers was Joe thinking of? **Give all possible solutions to this problem.** [2 marks]