SCSG F1 Manipulation of Simple Polynomials Test

Chapter 10 – *Manipulation of Simple Polynomials* Test /36

Name:_____ Class:_____ ( ) Parent's signature: _____

Part A (10 marks)

For questions 1 – 5, each question carries two marks. Choose the best answer for each question.

1. Simplify $-k \div (-4k^3)$.

   A. $4k^2$

   B. $\frac{4}{k^2}$

   C. $\frac{k^4}{4}$

   D. $\frac{1}{4k^2}$ ☐

2. Which of the following is NOT a polynomial?

   A. $\frac{1}{2}$

   B. $\frac{3}{2}x - 6$

   C. $\frac{1}{6x+3}$

   D. $-2x^3 + 4y^2$ ☐

3. Which of the following pairs are unlike terms?

   A. $3, -5$

   B. $5x^3, \frac{x^3}{5}$

   C. $4x^2y, 4xy^2$

   D. $x^3y^2, 2y^2x^3$ ☐

4. Simplify $(2m+5n-1)-(4m-3n)$.

   A. $-2m+2n-1$

   B. $-2m+8n-1$

   C. $6m+2n-1$

   D. $6m+8n-1$ ☐

5. The coefficient of the uv term in the expansion of $(4u-3v)(8u-2v)$ is

   A. –32.

   B. –16.

   C. –24.

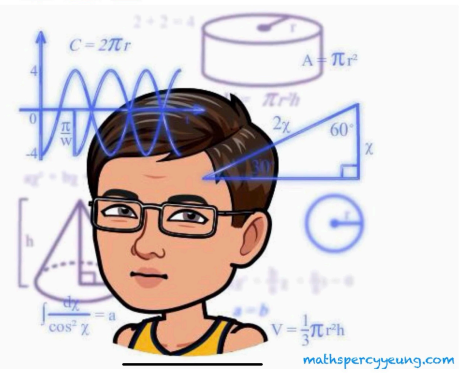
   D. 32. ☐

Part B (26 marks)

(Write your answers in the space provided.)

6. Complete the following table. (4 marks)

	Polynomial	Number of terms	Coefficient of x^2	Constant term	Degree of polynomial
(a)	$1+4x-8x^2y$				
(b)	$7x+2x^2-5x^4+6$				



7. Simplify the following expressions. (5 marks)

(a) $(-5m^4)(-6m^5)$ (b) $\dfrac{2m^4n \times (-3n^2)}{12m^7n^6}$

8. Consider the polynomial $-2x + x^4 + 3x^2 + 8 - 5x^3$.

(a) Arrange the terms of the polynomial in descending powers of x.

(b) Find the value of the polynomial when $x = -1$.

(4 marks)

9. Simplify each of the following expressions.

(a) $(3x - 2x^3) + (-2x + 5x^3)$

(b) $(4y^2 - y^3 + 2y + 1) - (3y + 2y^2 + y^3 - 5)$

(4 marks)

10. Expand and simplify each of the following expressions.

(a) $(2m-1)(-m+3)$

(b) $(2n+1)[n-(3n-2)]$

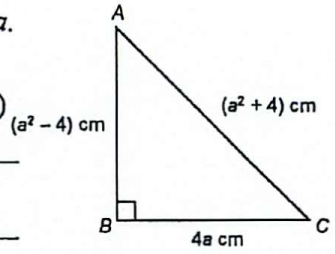
(5 marks)

10. In the figure, $\triangle ABC$ is a right-angled triangle.

(a) Express the perimeter and the area of $\triangle ABC$ in terms of a.

(b) If $a = 4$, find the perimeter and the area of $\triangle ABC$.

(4 marks)



11. Find the coefficient of x^{50} in the expression

$2(x^2+2x^3+3x^4+\cdots+98x^{99}+99x^{100})-x(2x+3x^2+4x^3+\cdots+99x^{98}+100x^{99})$.

(2 marks)