

# Printout

## Math 9 Ch5 Polynomials Practice Test

Name: \_\_\_\_\_

Area of Triangle:  $A = \frac{1}{2}b \cdot h$

Area of trapezoid:  $A = \frac{1}{2}h \cdot (b_1 + b_2)$



### Core Skills #1: characteristic of polynomials

1. For each polynomial, determine:	Leading coeff highest Deg.	Number of terms	Degree	Leading coefficient
a) $4a - 5a - 4$		3	2	-5
b) $5d^2 + dh - 11h^2d^2$		3	4	-11

2. Collect like terms.

a)  $3m - m^2 - 5 + 3m^2$

b)  $w^2 - 3w - 8w^2 + 7w^2 + 10w$

a)  $2m^2 + 3m - 5$

$0w^2 + 7w$   
 $1-8+7 \quad -3+10$

b)  $7w$

3. Circle the polynomials

a)  $\frac{5}{x^2}$

b)  $3x^3 - 2$

c)  $45.2$

d)  $2 + 3\sqrt{x}$

e)  $xy + 6 - z + 2x^2$

### Core Skills #2: Adding and subtracting polynomials

4. Add the polynomials by collecting like terms. Then, simplify.

a)  $(3x^2 - 4x) + (2x^2 + 5x)$

$-4+5$

Ans)  $5x^2 + x$

b)  $(9t^2 - 6t + 9) + (-2t^2 + 6t - 5)$

$7t^2 + 0t + 4$   
 $9-2 \quad -6+6 \quad 9-5$

Ans)  $7t^2 + 4$

5. Subtract the polynomials

a)  $(5a - 4) - (3a - 2)$

$5a - 4 - 3a + 2$

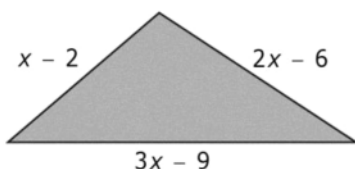
Ans)  $2a - 2$

b)  $(4k^2 - 6k + 1) - (-2k^2 + 5)$

$4k^2 - 6k + 1 + 2k^2 - 5$

Ans)  $6k^2 - 6k - 4$

6. A triangle has the dimension shown



a) Find the **perimeter** of the triangle as a polynomial

b) If  $x = 5 \text{ cm}$ , what is the perimeter in cm?

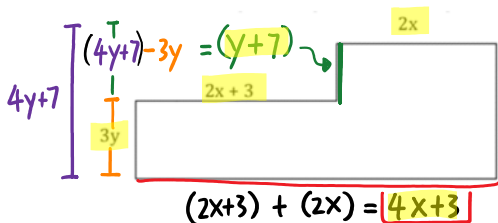
perimeter  $(x-2) + (2x-6) + (3x-9)$

If  $x=5\text{cm}$   $p = 6(5) - 17$   
 $30 - 17$

a)  $6x - 17$

b)  $13\text{cm}$

7. Write a simplified polynomial expression for the perimeter



perimeter

$(2x) + (4y+7) + (4x+3) + (3y) + (2x+3) + (4y+7)$

$8x + 8y + 20$

Ans)  $8x + 8y + 20$

### Core Skills #3: Multiply and Divide Polynomials

8. Determine the product

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

9. Multiply and simplify

a)  $(-2a)(5a^2 + 3a - 6)$

$- \quad - \quad +$

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

Ans)  $-12x^3$

b)  $(6xy^2)(4y^5)$

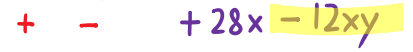
Ans)  $24xy^7$

a)  $(-2a)(5a^2 + 3a - 6)$



Ans)  $-10a^3 - 6a^2 + 12a$

b)  $(-4x)(-7 + 3y)$

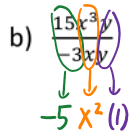


Ans)  $-12xy + 28x$

10. Determine the quotient

a)  $\frac{16x^2}{4}$

Ans)  $4x^2$



Ans)  $-5x^2$

11. Divide and simplify

a)  $\frac{15x^2 - 20x}{5x} = \frac{15x^2}{5x} - \frac{20x}{5x}$

Ans)  $3x - 4$

b)  $\frac{9y^2 - 12y - 6y^3}{-3y}$

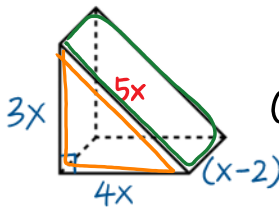
$\frac{9y^2}{-3y} - \frac{12y}{-3y} - \frac{6y^3}{-3y}$

$-3y + 4 + 2y^2$  order Ans)  $2y^2 - 3y + 4$

12. Determine the total surface area of the prism below.



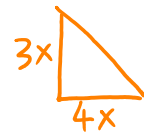
$c^2 = 3^2 + 4^2$   
 $c = 5$



$3x \times (x-2)$   $A_1 = 3x(x-2) = 3x^2 - 6x$

$(x-2) \times 4x$   $A_2 = 4x(x-2) = 4x^2 - 8x$

$(x-2) \times 5x$   $A_3 = 5x(x-2) = 5x^2 - 10x$



$A_4 = \frac{1}{2}(3x)(4x) = 6x^2$

$\therefore$  Total SA =  $(3x^2 - 6x) + (4x^2 - 8x) + (5x^2 - 10x) + 6x^2 + 6x^2$

Ans)  $24x^2 - 24x$

**Core Skills #4: Combined operation on Polynomials**

13. Simplify:

a)  $2(7x + 2) + 4x(3 + 2x)$

$14x + 4 + 12x + 8x^2$

Ans)  $8x^2 + 26x + 4$

b)  $\frac{-2x^3 + 8x}{2x} - 3(7 - 4x)$

$\frac{-2x^3}{2x} + \frac{8x}{2x} - 21 + 12x$

$-x^2 + 4 - 21 + 12x$

Ans)  $-x^2 + 12x - 17$

14. Simplify:  $+\frac{9a^2(3a-8)}{+a} - (2a)(5a+4)$

$\frac{27a^3}{a} - \frac{72a^2}{a} - 10a^2 - 8a$

$27a^2 - 72a - 10a^2 - 8a$

Ans)  $17a^2 - 80a$

15. Simplify:  $3x(x^2 - 4x + 8) - \frac{15x^3 + 5x - 25x^2}{5x}$

15. Simplify:  $3x(x^2 - 4x + 8) - \frac{15x^3 + 5x - 25x^2}{5x}$

$$3x^3 - 12x^2 + 24x - \frac{15x^3}{5x} - \frac{5x}{5x} + \frac{25x^2}{5x}$$

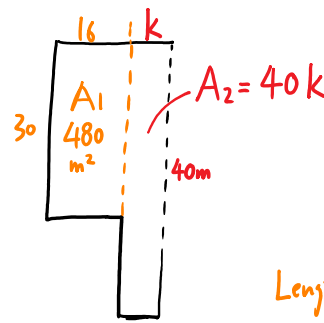
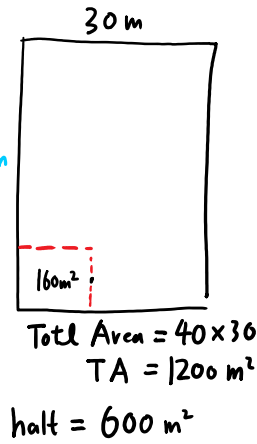
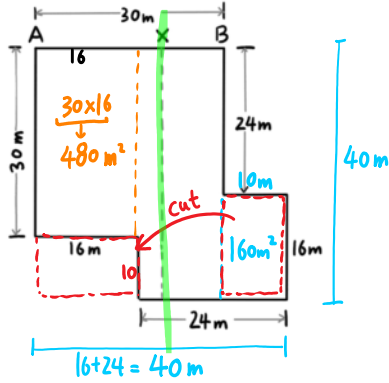
$$3x^3 - 12x^2 + 24x - 3x^2 - 1 + 5x$$

$$3x^3 - 15x^2 + 29x - 1$$

Ans) \_\_\_\_\_

NOT PART OF THE MAIN TEST!!!! This is the bonus question for bragging right and a sticker only ^\_^

Instruction: the dotted line "x" cuts the area in this figure by exactly half. (so the area on the left and right side of the dotted line is equal!). Find the length from "A" to "x". (you are finding out where x is and there are many ways to do this)



$$\begin{aligned} \text{half Room} &= A_1 + A_2 \\ 600 &= 480 + 40k \\ 120 &= 40k \\ k &= 3\text{m} \end{aligned}$$

$$\text{Length AX} = 16\text{m} + 3\text{m}$$

Length AX) 19m