**DEGREE of POLYNOMIALS**

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| **DEGREE of a TERM**  The \_\_\_\_\_\_ of the exponents of the variables.  **Ex:** What is the degree of:  a) x3 b) x3y4 | **DEGREE of a POLYNOMIAL**  The \_\_\_\_\_\_\_\_\_\_ degree of its terms.  **Ex:** What is the degree of x3y4 + x7y |

Try these: Determine the degree of the following:

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| Ex1: 2x3 – 5x2 +1 | Ex2: -3x4y2z |
| Ex3: 3a5b4c3 – 10a4b3c2 + 3 | Ex4: x4y3 |

**ADDING POLYNOMIALS**

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| **To add polynomials**, this is VERY similar to collecting like terms, **you**:   1. Drop the brackets – we are allowed to do this when there is only a PLUS sign between the brackets \* this does not work with a subtract sign. 2. Identify the like terms 3. Rearrange (optional) \*remember the sign (+/-) stays with the term 4. Add the coefficients \*remember the sign (+/-) stays with the term 5. Keep the variable the same |

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| Example 1:    = 2x2 + x2 + 3x + 2x + 5 + 3  = 3x2 +5x +8 | Example 2:    =3y2 + y – 2 |

**Practice: Adding Polynomials**

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| a. | b. |
| c. | d. |
| e. Find the ‘algebraic expression’ for the perimeter of the following triangle. | |
| **ANSWERS**  a) 2a+2, b) -4a+5, c) 5n2+4n+3, d) 2p2–4p+3 d) P=3x -1 | |

**SUBTRACTING POLYNOMIALS**

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| **Finding the opposite:**  What is the opposite of +5? \_\_\_\_\_ What is the opposite of -7? \_\_\_\_\_  What is the opposite of x? \_\_\_\_\_ What is the opposite of -3y?\_\_\_\_\_  Write the opposites of the following expressions (JUST SWITCH THE SIGN OF EVERY TERM)   |  |  |  | | --- | --- | --- | | a. -5x + 4 | b. 6x – y | c. x + y | |

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| **TO SUBTRACT POLYNOMIALS, YOU CANNOT** DROP THE BRACKETS!  If you drop the brackets, only the first term of the second bracket will be subtracted 🡪 *the entire bracket* following the minus sign needs to be subtracted. |

**RULE:**

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| 1. We need a + between the brackets in order to remove the brackets. We can change the – to a +, if we also change everything in the following bracket to ‘the opposite’. This is known as **ADDING THE OPPOSITE** (the additive inverse).   Then it is the same as adding polynomials!   1. Drop the brackets – we are allowed to do this when there is only a PLUS sign between the brackets \* this does not work with a subtract sign. 2. Identify the like terms 3. Rearrange (optional) \*remember the sign (+/-) stays with the term 4. Add the coefficients \*remember the sign (+/-) stays with the term   Keep the variable the same |

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| **Example 1**    = 2x2 - x2 + 3x - 2x + 5 - 3  = x2 + x +2 | **Example 2**  Every sign of 2nd poly switched  = 5y2 – 5y – 8 |

**PRACTICE: SUBTRACTING POLYNOMIALS**

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| a. | b. |
| c. | d. |
| e. | f. |
| g. | h. |
| i. Find an algebraic expression for the length of AB in the following diagram. | |
| **ANSWERS**  a) –a +4, b) -2a + 1, c) 2n – 1, d) -4p + 5, e) –m +5, f)4g2 +g +11, g) 3m2 – 3m – 9, h) -4m -16, i) x + 4 | |