Mid-Unit 1 Review

Here are examples that show how to solve all of the problems on this worksheet:

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| **Example:** Fill in the table.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | 1st | 2nd | | 3rd | | Term |  |  | |  | | *Terms are the added/subtracted parts written separately.* | | | | | | Coeff. | 1 | -6 | 9 | | | *Coefficients are numbers multiplied in front of variables.* | | | | | | Power |  |  | |  | | *Powers are the variables with their exponents showing.* | | | | | | Exp. | 4 | 1 | | 0 | | *Exponents are the little numbers in the upper-right on the powers.* | | | | | | **Example:** Write the polynomial in standard form and identify the degree.  *Standard form puts the exponents in order from biggest to smallest. When the terms move, they keep their signs.*  *The standard form is:*  *The degree is the highest exponent:* **5***.* | **Example:** Write in standard form.  *We* ***don’t change addition****, we just organize them into like terms:*   |  |  |  | | --- | --- | --- | | *terms can only add with ’s.* | | | | *is the only term* | | | | *terms can only add with ’s.* | | | | *is the only term* | | | | *# terms can only add with #’s.* | | | | ***&*** *One is positive and one negative, so there are zero pairs that will cancel.* |  |  | |  |  | |  | | | **Example:** Write in standard form.  *First, we need to change* ***subtraction to adding the opposites:***  *Now, organize into like terms:*   |  |  |  | | --- | --- | --- | | *is the only term* | | | | *is the only term* | | | | ***&*** *Both are positive, so they won’t cancel* |  |  | |  |  | |  | | |
| **Example:** Write in standard form.  *First, we need to change* ***subtraction to adding the opposites:***  *Now, organize into like terms:*   |  |  |  |  | | --- | --- | --- | --- | | ***&***  *Both are positive, so they won’t cancel.* |  | |  | |  | |  | | = | | | | ***&***  *They’re positive and negative, so the zero pairs will cancel.* |  |  | | |  |  | | |  | | | | **Example:** Write in standard form.  *We* ***don’t change addition****, we just organize them into like terms:*   |  |  |  |  | | --- | --- | --- | --- | | ***&***  *They’re positive and negative, so the zero pairs will cancel.* |  | |  | |  | |  | | = | | | | ***&***  *Both are negative, so they won’t cancel.* |  |  | | |  |  | | | = | | |   = | **Example:**  Multiply.  *Multiplication Sign Rules:*  *2 of different signs multiply to +*  *2 of same signs multiply to -*  *You can set up a generic rectangle by writing each (group) on its own side.*   |  |  |  | | --- | --- | --- | |  |  |  | |  | = | = | |  | = | = |   *Simpler version:*   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  |   *Now, combine like terms from inside. Remember that positives cancel out zero pair negatives.*  *Or, you can do this visually, using algebra tiles:* | **Example:** Multiply.  *Multiplication Sign Rules:*  *2 of different signs multiply to +*  *2 of same signs multiply to -*  *You can set up a generic rectangle by writing each (group) on its own side.*   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | |  |  |  |   *Simpler version:*   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | |  |  |  |   *Now, combine like terms from inside. Remember that opposite signs form zero pairs in addition, and cancel each other. Same signs just get bigger.* |
| **Example:**  *Generic Rectangle:*   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  |   *Combine like terms:*  *None of the terms are “like” (have the same variable exponent), so I can’t combine them. All you can do is write the polynomial in standard form.* | **Example:**   |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |   Like terms from inside the table:  **Answer:** | **Example:** Factor.  *First, we are going to split the polynomial into 2 groups:*   |  |  | | --- | --- | |  |  | | *First group:*  *What can be backwards distributed (taken out of both)?*  *both have*  *take x out* | | | *Second group:*  *What can be backwards distributed (taken out of both)?*  *both have 5*  *take 5 out* | |   *So…*   |  |  | | --- | --- | |  |  | |  |  | | *Now, we can put them back together and backwards distribute from the whole thing:*  *Both have , so take it out* | |   The factored form of  is | **Example:** Factor.  *First, we are going to split the polynomial into 2 groups:*   |  |  | | --- | --- | |  |  | | *First group:*  *What can be backwards distributed (taken out of both)?*  *both have*  *take x out* | | | *Second group:*  *What can be backwards distributed (taken out of both)?*  *both have-3*  *take-3 out* | |   *So…*   |  |  | | --- | --- | |  |  | |  |  | | *Now, we can put them back together and backwards distribute from the whole thing:*  *Both have , so take it out* | |   The factored form of  is |
| **Example:** Factor.  *Split it:*   |  |  | | --- | --- | |  |  | | *both have*  *take x out* | *both have-1*  *take-1 out* |  |  |  | | --- | --- | |  |  | | *Both have , so take it out* | |   The factored form of  is | | **Example:** Factor.  *Split it:*   |  |  | | --- | --- | |  |  | | *both have*  *take 3x out* | *both have 4*  *take+4 out* |  |  |  | | --- | --- | |  |  | | *Both have , so take it out* | |   The factored form of  is | |

Use the examples above as a guide to solving the problems below.

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| 1. Fill in the table.   |  |  |  | | --- | --- | --- | |  | 1st | 2nd | | Term |  |  | | Coefficient |  |  | | Power |  |  | | Exponent |  |  | | | 2. Fill in the table.   |  |  |  |  | | --- | --- | --- | --- | |  | 1st | 2nd | 3rd | | Term |  |  |  | | Coeff. |  |  |  | | Power |  |  |  | | Exp. |  |  |  | | | 3. Fill in the table.   |  |  |  |  | | --- | --- | --- | --- | |  | 1st | 2nd | 3rd | | Term |  |  |  | | Coeff. |  |  |  | | Power |  |  |  | | Exp. |  |  |  | | |
| 4. Write the polynomial in standard form and identify the degree. | | 5. Write the polynomial in standard form and identify the degree. | | 6. Write the polynomial in standard form and identify the degree. | |
| 7. Write in standard form. | 8. Write in standard form. | | 9. Write in standard form. | | 10. Write in standard form. |
| 11. Write in standard form. | 12. Write in standard form. | | 13. Write in standard form. | | 14. Write in standard form. |
| 15. Write in standard form. | 16. Write in standard form. | | 17. Write in standard form. | | 18. Write in standard form. |
| 19. Multiply.   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | | 20. Multiply.   |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  | | | 21. Multiply.   |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  | | | 22. Multiply.   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | |
| 23.   |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  | | 24.   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | | | 25.   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | | | 26.   |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  | |
| 27. Factor. | 28. Factor. | | 29. Factor. | | 30. Factor. |
| 31. Factor. | 32. Factor. | | 33. Factor. | | 34. Factor. |

Answers

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|  | |  |  |  | | --- | --- | --- | |  | 1st | 2nd | | Term |  |  | | Coefficient |  |  | | Power |  |  | | Exponent |  |  | |  | |  |  |  |  | | --- | --- | --- | --- | |  | 1st | 2nd | 3rd | | Term |  |  |  | | Coefficient |  |  |  | | Power |  |  |  | | Exponent |  |  |  | |
|  | |  |  |  |  | | --- | --- | --- | --- | |  | 1st | 2nd | 3rd | | Term |  |  |  | | Coefficient |  |  |  | | Power |  |  |  | | Exponent |  |  |  | |  | Degree: 8 |
|  | Degree: |  | Degree: 6 |
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