Lesson 1.2.3: Factoring the Difference of Two Squares

Perfect Square: When a polynomial is multiplied by itself, then it is a perfect square.
Difference of Two Squares: a squared polynomial subtracted from another squared polynomial
Formula: The factored form of a polynomial that is a difference of two squares is the sum and difference of the square roots of the first and last terms.
In symbols,

$$a^2 - b^2 = (a+b)(a-b)$$

or

$$1\text{st}^2 - 2\text{nd}^2 = (1\text{st}+2\text{nd})(1\text{st}-2\text{nd})$$

Practice Exercises 1.2.3

Factor the following polynomials completely.

1. $36x^2 - 64$
2. $16x^4 - 49y^2z^2$
3. $4a^2 - b^6$
4. $81m^4n^2 - 9z^6$
5. $a^4 - 16b^2$
6. $16m^8 - 81b^4$
7. $c^4 - 1$
8. $x^4y^2 - 36z^6$
9. $x^4y^2 - 49$
10. $16m^4 - 64$

Activity 1.2.3

Factor the following polynomials completely.

1. $4x^2 - 49y^2$
2. $a^2 - 100$
3. $y^8 - 16z^4$
4. $y^4 - 1$
5. $25m^2 - 9$
6. $144x^6 - 100y^4$
7. $a^2b^4 - 121$
8. $x^6y^2 - 49z^8$
9. $x^2y^4 - 64$
10. $36m^6 - 81$

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