Lesson 1.2.5: Factoring Perfect Square Trinomials

Perfect Square Trinomial:

- the result of squaring a binomial
- has first and last terms which are perfect squares and a middle term which is twice the product of the square root of the first and last terms

Steps in Factoring Perfect Square Trinomials:

1. Get the square root of the first and last terms.
2. List down the square root as sum or difference of two terms as the case may be.

In symbols,

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

Practice Exercises 1.2.5

Factor the following polynomials completely.

1. $x^2-12xy+36y^2$
2. $x^2+10x+25$
3. $9a^2-36ab+36b^2$
4. $3m^2+18mn+27n^2$
5. $a^4c^2-6a^2bc+9b^2$
6. $9m^2-12mn+4n^2$
7. $x^4+6x^2y+9y^2$
8. $12a^2+12ab^3+3b^6$
9. $c^4-6c^2d^3+9d^6$
10. $2x^2-12x+18$

Activity 1.2.5

Factor the following polynomials completely.

1. $16x^2-24xy+9y^2$
2. $4x^2+20x+25$
3. $49a^2-84ab+36b^2$
4. $121m^4+66m^2n+9n^2$
5. $64a^2-32ab+4b^2$
6. $4x^4y^2-12x^2yz^3+9z^6$
7. $9x^2y^2+30xyz^2+25z^4$
8. $16x^4-24x^2y+9y^2$
9. $36x^2-84xy^3+49y^6$
10. $4x^2+28x+49$

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