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.

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

 $1st^2 - 2nd^2 = (1st + 2nd)(1st - 2nd)$ 

#### Practice Exercises 1.2.3

Factor the following polynomials completely.

1.  $36x^2 - 64$ 

In symbols,

- 2.  $16x^4 49v^2z^2$ 3.  $4a^2 - b^6$
- 4.  $81m^4n^2 9z^6$
- 5.  $a^4 16b^2$

- 10.  $16m^4 64$

# Activity 1.2.3

Factor the following polynomials completely.

- 1.  $4x^2 49y^2$
- 6.  $144x^6 100y^4$

6.  $16m^8 - 81b^4$ 

8.  $x^4y^2 - 36z^6$ 

9.  $x^4y^2 - 49$ 

7.  $c^4 - 1$ 

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

## 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  
 $1st^2 - 2nd^2 = (1st + 2nd)(1st - 2nd)$ 

### Practice Exercises 1.2.3

Factor the following polynomials completely.

1. 
$$36x^2 - 64$$

6. 
$$16m^8 - 81b^4$$

2. 
$$16x^4 - 49y^2z^2$$
  
3.  $4a^2 - b^6$ 

7. 
$$c^4 - 1$$

4. 
$$81m^4n^2 - 9z^6$$

8. 
$$x^4y^2 - 36z^6$$

9. 
$$x^4y^2 - 49$$

5. 
$$a^4 - 16b^2$$

#### Activity 1.2.3

Factor the following polynomials completely.

1. 
$$4x^2 - 49y^2$$

6. 
$$144x^6 - 100y^4$$

2. 
$$a^2 - 100$$

7. 
$$a^2b^4 - 121$$

3. 
$$y^8 - 16z^4$$

8. 
$$x^6y^2 - 49z^8$$

4. 
$$y^4 - 1$$

9. 
$$x^2y^4 - 64$$

5. 
$$25m^2 - 9$$

## 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  
 $1st^2 - 2nd^2 = (1st + 2nd)(1st - 2nd)$ 

#### Practice Exercises 1.2.3

Factor the following polynomials completely.

1. 
$$36x^2 - 64$$

6. 
$$16m^8 - 81b^4$$

2. 
$$16x^4 - 49y^2z^2$$

7. 
$$c^4 - 1$$
  
8.  $x^4y^2 - 36z^6$ 

3. 
$$4a^2 - b^6$$
  
4.  $81m^4n^2 - 9z^6$ 

9. 
$$x^4y^2 - 49$$

5. 
$$a^4 - 16b^2$$

Factor the following polynomials completely.

1. 
$$4x^2 - 49y^2$$

6. 
$$144x^6 - 100y^4$$

2. 
$$a^2 - 100$$
  
3.  $v^8 - 16z^4$ 

5.  $25m^2 - 9$ 

7. 
$$a^2b^4 - 121$$
  
8.  $x^6y^2 - 49z^8$ 

4. 
$$y^4 - 1$$

9. 
$$x^2y^4 - 64$$
  
10.  $36m^6 - 81$ 

## 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  
 $1st^2 - 2nd^2 = (1st + 2nd)(1st - 2nd)$ 

## Practice Exercises 1.2.3

Factor the following polynomials completely.

1. 
$$36x^2 - 64$$

6. 
$$16m^8 - 81b^4$$

2. 
$$16x^4 - 49y^2z^2$$

7. 
$$c^4 - 1$$
  
8.  $x^4y^2 - 36z^6$ 

3. 
$$4a^2 - b^6$$
  
4.  $81m^4n^2 - 9z^6$ 

9. 
$$x^4y^2 - 49$$

5. 
$$a^4 - 16b^2$$

Activity 1.2.3

10. 
$$16m^4 - 64$$

5. 
$$a^4 - 10b^2$$

Factor the following polynomials completely.

1. 
$$4x^2 - 49y^2$$

6. 
$$144x^6 - 100y^4$$

2. 
$$a^2 - 100$$
  
3.  $y^8 - 16z^4$ 

7. 
$$a^2b^4 - 121$$
  
8.  $x^6y^2 - 49z^8$ 

4. 
$$y^4 - 1$$

9. 
$$x^2y^4 - 64$$

5. 
$$25m^2 - 9$$