**Unit 3: Radical and Exponential Functions**

**By the end of the unit students will be able to:**

* Extend the properties of exponents to rational exponents.
* Solve Systems involving lines, parabolas, and circles.

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| **Day** | **Date** |  **Lesson** | **Assignment** | **Check** |
| 1 | ThursdayFeb. 16th  | Monomial Rules / Properties of Exponents | Homework 3-1 |  |
| 2 |  FridayFeb. 17th  | Adding, Subtracting, & Multiplying Polynomials | Homework 3-2  |  |
| 3 |  MondayFeb. 20th  | **Quiz** | TBD |  |
| 4 |  TuesdayFeb. 21st  | Systems of Lines & Parabolas | Homework 3-3 |  |
| 5 | WednesdayFeb. 22nd  | Systems of Lines and Circles | Homework 3-4 |  |
| 6 | ThursdayFeb. 23rd  | Solving Radical Equations | Homework 3-5 |  |
| 7 | FridayFeb. 24th  | Solving Radical Equations | Homework 3-6 |  |
| 8 | MondayFeb. 27th  | Types of Variation | Homework 3-7 |  |
| 9 | TuesdayFeb. 28th  | Systems involving Inverse Variation | Hondout |  |
| 10 | WednesdayMar. 1st  | Review | Review Sheet |  |
| 11 | ThursdayMar. 2nd  | Review for Test |  |  |
| 12 | FridayMar. 3rd  | Unit 3 Test | Unit 4 Placemat |  |

**Homework 3-1**



**Homework 3-2**

1. $\left(6b+4b^{5}\right)+(3b^{5}-5b)$ 2. $\left(8n^{2}+7n^{4}\right)-(9n^{4}-2n^{2})$

3. $\left(5p^{2}-3p\right)+(2p^{2}-3p^{3})$ 4. $\left(4+2n^{3}\right)+(5n^{3}+2)$

5. $\left(3a^{2}+1\right)-(4+2a^{2})$ 6. $\left(-4k^{4}+14+3k^{2}\right)+(-3k^{4}-14k^{2}-8)$

7. $\left(12a^{5}-6a-10a^{3}\right)-(10a-2a-14a^{4})$ 8. $\left(8b^{3}-6+3b^{4}\right)-(b^{4}-7b^{3}-3)$

9. $7(-5v-8)$ 10. $6v(2v+3)$

11. $2x(-2x-3)$ 12.$(2n+2)(6n+1)$

13. $(6p+8)(5p-8)$ 14. $(7k-3)(k^{2}-2k+7)$

15. $\left(7r^{2}-6r-6\right)(2r-4)$ 16. $(n^{2}+6n-4)(2n-4n+1)$

**Homework 3-3 Intersection of lines and Parabolas**

**Graph each of the following**

**1.**  and y = -2x + 4 **2.** x2 + 3x + 2 and y = x + 2

Solve the system of equations Algebraically:

3. y = x2 – 4x + 9 4. y = -x2 + 2x - 4

 y = 2x + 1 x + y = -4

5. Each year, Heritage’s Homecoming committee organizes a dance. Based on previous years, the organizers decided that the Income from ticket sales, I(t) is related to ticket price *t* by the equation *I(t) = 400t – 40t2. Cost* C(t) of operating the dance is also related to ticket price *t* by the equation *C(t) = 400 – 40t.*

* 1. What ticket price(s) would generate the greatest income? What is the greatest income possible? Explain how you obtained the value you got.

Ticket price(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Income \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. For what ticket price(s) would the operating costs be equal to the income from ticket sales? Explain how you obtained the answer.

**HW 3-4 Intersection of Circles and Lines**

**On separate paper Solve Algebraically**

1. x2 + y2 = 50 and y = x 2. x2 + y2 = 26 and 5y = x

**Circle the correct answer.**

3. x2 + y2 = 2 and y = x – 2 4. x2 + y2 = 25 and 2x – y = 5 5. y = 2x2 + 2x + 3 and y – x = 3

 a) (2, -2) and (1, -1) a) (4, 3) a) (0, 3) and (3, 0)

 b) (-1, 1) and (1, -1) b) (-5, 0) and (4, 3) b) (0, 3) and (-0.5, 2.5)

 c) (-1, 1) c) (0, -5) and (4, 3) c) (0.5, 2.5) and (3, 0)

 d) (1, -1) d) (0, -5) d) (-0.5, 2.5) and (-3, 0)

**Homework 3-5**

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| 1.)   | 2.)  |
| *3.)*  | *4.)*  |
| *5.)*  | *6.)*  |
| *7.)*  | *8.)*  |
| *9.)*  | *10.)*  |