**Algebra II Core – First Semester Midterm Review 2016 Part 1**

**1. Solve the linear system:** $\left\{\begin{array}{c}2x+3y=-2\\4x+7y=-6\end{array}\right.$

**2. Graph the linear system and estimate the solution:** $\left\{\begin{array}{c}3x-y=12\\-x+8y=-4\end{array}\right.$

**3. In one day, a movie theater collected $4600 from 800 people. The price of admission is $7 for an adult and $5 for a child. How many adults and how many children were admitted to the movie theater that day?**

**4. Solve the system of equations:** $\left\{\begin{array}{c}4x+5y+3z=15\\x-3y+2z=-6\\-x+2y-z=3\end{array}\right.$

**5. Graph the system of linear inequalities:** $\left\{\begin{array}{c}x+y\geq -3\\-6x+4y<14\end{array}\right.$

**6. Which ordered pair is a solution to the system in #7?**

**a) (-3,1) b) (1,1) c) (0,4) d) (-4,0)**

**7. Graph the function:** $y=(x-2)(x+3)$

**8. Write the equation** $y=x^{2}+4x-12$ **in intercept form of a quadratic.**

**9. Solve** $x^{2}-x=0$

**10. Solve** $3x^{2}+10x-8=0$

**11. Describe the end behavior for the graph:** $y=x^{3}$**.**

**Algebra II Core – First Semester Midterm Review 2016 Part 2**

**12. Solve** $6x^{2}-7x=5$**. 13. Solve** $x^{2}+6x-3=0$**.**

**14. Solve** $(3x-4)^{2}=60$**. 15. Solve** $x^{2}+10x+8=-5$**.**

**16. Solve** $4x^{2}+24x-11=0$ **17. Solve** $x^{3}-4x^{2}=0$

**18. Graph** $f\left(x\right)=x^{3}-4x$**.**

**19. Find all of the zeros of the function** $f\left(x\right)=3(-x+1)(3x-4)(4x+5)$**.**

**20. Write a polynomial function that has zeros 4, -1, 2 and has a leading coefficient of 1.**

**A) in intercept form. B) in standard form.**

**21. Graph** $f\left(x\right)=\frac{x+5}{x-2}$**.**

**22. Identify all horizontal and vertical asymptotes of the graph of the function. Find the domain.**

$$f\left(x\right)=\frac{x^{2}}{x^{2}-16}$$

**23. Add** $\frac{12}{x^{2}+5x-24}+\frac{3}{x-3}$

**24. Solve. Check for extraneous solutions.** $\frac{4}{x+2}=\frac{14}{2x-1}$

**25. In the quadratic formula** $y=ax^{2}+bx+c$**, how does “a” affect the graph and how does “c” affect the graph?**

**27. The price per person of renting a cabin varies inversely with the number of people renting the cabin. It cost $40 per person if 8 people rent the cabin. How much will it cost per person if 12 people rent the cabin?**