Chapter 2 Quiz Review Worksheet

1. Determine the behavior of the function $f_{(x)} = -(x-3)^2 + 6$. (How does it open and shift)

2. Find the vertex of the function $f_{(x)} = 3x^2 - 4x + 5$.

3. Find the zeros of the function $f_{(x)} = 3x^2 - 5x - 2$.

4. Find the equation of a parabola that has a vertex of $(3,7)$ and contains the point $(-2,-6)$.

5. Find the equation of a parabola that opens up, and has x intercepts of $(-2,0)$ and $(4,0)$.

6. Find the equation of a parabola that has x-intercepts of $(-4,0)$ and $(8,0)$, and has a maximum value of 8.

7. Find the minimum value of the function $f_{(x)} = \frac{1}{2}x^2 - 3x + 1$.

8. The profit a company makes by selling a given product is given by the model $p = -.25x^2 + 15x + 36$, where p is the profit in hundreds of dollars, and x is the number of units sold. How many units must be sold in order to maximize profits?

9. Find the axis of symmetry of the function $f_{(x)} = \frac{1}{4}x^2 + 6x + 3$?

10. Find the y-intercept of the function $f_{(x)} = 2(x-3)^2 + 9$.

11. Graph $f_{(x)} = -x^2 + 8x - 16$

12. Graph $f_{(x)} = 2x^2 - 12x + 10$

13. Determine the left and right hand behaviors of the function:

$$f(x) = -\frac{1}{3}x^3 - 5x^2 + 12x + 8$$

14. Create a polynomial function that has zeros of 0, -3, and 8.

15. Divide: $\dfrac{4x^4 - 4x^3 - 5x^2 - 9x - 1}{2x - 1}$

16. Divide: $\dfrac{6x^3 - 5x^2 + 15x - 5}{2x^2 - x + 3}$

17. Is x+2 a factor of $f(x) = x^5 + 4x^4 + x^3 + 2x^2 + x + 2$

18. Use synthetic substitution to find $f(3)$ given $f(x) = 2x^3 - 7x^2 + 5x - 1$.

Factor completely

19. $x^2 - 11x + 28$

20. $x^2 - 9x - 36$

21. $x^2 + 2x - 24$

22. $x^2 - 10x - 56$

23. $2x^2 + 19x + 45$

24. $4x^2 + 7x - 2$

25. $3x^3 + x^2 + 12x + 4$

26. $x^5 - 4x^3 + 8x^2 - 32$

27. $3x^4 - 39x^2 + 108$

28. $x^3 - 6x^2 - 4x + 24$