3pts   1. If $f(x) = 4x^5 - 2x^3 + 9x$ find $f(x^2 + 7x + 6)$ [SET UP ONLY]

3pts 2. What is the domain of $\dfrac{3x + 5}{x^2 - 26x + 48}$?

4pts 3. Graph $5x - 3y = 15$

4pts 4. Graph $y = x^2 - 8x + 7$

4pts 5. Graph $f(x) = \begin{cases} 2x + 7 & -4 \le x < -2 \\ x^2 & x \ge -2 \end{cases}$

IN QUESTIONS 6-8 USE $F(X) = 6X^5 + 10X^3 + 4$ AND $G(X) = 3X^5 - 7X^3 + 8$

3pts 6. Find $(F - G)(X)$

3pts 7. Find $\left(\dfrac{F}{G}\right)(X)$

4pts 8. Find $(F \circ G)(X)$

4pts 9. If $f(x) = x^2 - 12x + 11$ find $\dfrac{f(x + h) - f(x)}{h}$

4pts 10. Factor completely $3x^2 - 48x + 189$

4pts 11. Factor completely $8x^7 - 200x^5$

4pts 12. Use the quadratic formula to solve $3x^2 = 7x + 20$

4pts 13. Find the points where $y = 2x + 15$ and $y = 2x^2 - 3x - 10$ intersect

4pts 14. Simplify using the laws of exponents $\dfrac{-34x^8y^5z^5}{2x^{-4}y^{11}z}$

3pts 15. Simplify $(27/16)^{3/4}$

4pts 16. Suppose you have a rectangle of length 4 times its height **h**. Write an equation
        expressing the fact that the area is 256 square centimeters.

4pts 17. Write an equation of a line with slope 3/5 passing through (10, -3)

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4pts 18. Find the equation of the line that passes through (7, 9) and (10, 15)

4pts 19. Find the equation of the line passing through (2, 9) and is parallel to $3x + 2y = 12$

4pts 20. Find the equation of the tangent line to the graph of $y = x^2$ at the point where $x = -3$

4pts 21. If $f(x) = 11x + 3$ find the derivative   4pts 22. If $f(x) = \dfrac{1}{x^3}$ find $f'(x)$

4pts 23. If $f(x) = x^3$ find $f'(2)$

5pts 24. Using $f'(a) = \lim\limits_{x \to a} \dfrac{f(x) - f(a)}{x - a}$ find $f'(x)$ when $f(x) = x^2 + 9x - 3$

4pts 25. Find $\lim\limits_{x \to 2} 2x^3 + 9x^2 - 30$ 4pts 26. Find $\lim\limits_{x \to 1} \dfrac{x^2 - 5x + 4}{x - 1}$

formulas

$y - y_1 = m(x - x_1)$ $ax + by = c$ $y = mx + b$ $m_1 = m_2$

$m_1 = -1 / m_2$ $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $m = \dfrac{y_2 - y_1}{x_2 - x_1}$