

Homework #1 Final Answers

1. $f'(x) = 0$

2. $f'(x) = 6x^7$

3. $f'(x) = 3x^2 - 4$

4. $f'(x) = 7x^6 - 30x^4$

5. $f'(x) = -3x^{-4} = \frac{-3}{x^4}$

6. $f'(x) = 60x^{-6} = \frac{60}{x^6}$

7. $f'(x) = 10x - \frac{1}{2\sqrt{x}} + \frac{5}{7}x^{-\frac{2}{7}}$

8. $f'(x) = -3x^{-2} + 4x^{-3}$

9. $y' = \frac{40x^4 - 9x^8}{2\sqrt{8x^5 - x^9}}$

10. $y' = 9(\sqrt{x} + x^{-1})^8 \cdot \left(\frac{1}{2\sqrt{x}} - x^{-2}\right)$

11. $f'(x) = \frac{6}{7} - \frac{6}{7}x^{-\frac{1}{7}} - \frac{6}{7}x^{-7}$

12. Show work

13. $f'(x) = -21x^6 + 4x^3 - 5x^{-2} - 30x$

Show both ways

14. $f'(x) = -15x^{-6} + 15x^{-16} \stackrel{OR}{=} \frac{-15}{x^6} + \frac{15}{x^{16}}$

15. $y = \frac{5}{2}x - \frac{2}{3}$

16. $f'(x) = \frac{19}{(1-5x)^2}$

Note: these are just the final answers.

Show all work for a full justification