MA1 Homework 21

In 1 – 2, find $\frac{d^2y}{dx^2}$.

1. $y = 5x^4 - 4x^3 + 6x - 8$

2. $y = 2\left(x^2 - 45\right)^5$

In 3 – 4, find y'''.

3. $y = \frac{1}{x}$

4. $y = ax^3 + bx + c$ (a, b, c constant).

5. Show that $y = x^3 + 3x + 1$ satisfies $y''' + xy'' - 2y' = 0$.

6. If $f(x) = \left(1 + \frac{x}{20}\right)^5$, find the value of $f''(40)$.

7. Given that $f(x) = x^2 \cdot g(x)$, $g(2) = 3$, $g'(2) = -1$, and $g''(2) = -2$, find the value of $f''(2)$.