

$$\begin{aligned}
& \frac{-13}{4}y^4 - 4y^2 + 8y - \frac{1}{4} + \frac{2}{3}y \\
& \frac{-13}{4}y^4 - 4y^2 + \left(8 + \frac{2}{3}\right)y - \frac{1}{4} \\
& \frac{-13}{4}y^4 - 4y^2 + \left(\frac{24 + 2}{3}\right)y - \frac{1}{4} \\
& \frac{-13}{4}y^4 - 4y^2 + \left(\frac{26}{3}\right)y - \frac{1}{4}
\end{aligned}$$

Therefore, the difference is $\frac{-13}{4}y^4 - 4y^2 + \left(\frac{26}{3}\right)y - \frac{1}{4}$.

5. Simplify the following: $-\left(4x^2 - \frac{1}{4}\right) - \left(8x^2 + \frac{3}{4}x\right) - [(x^2 - 1) - (7x - 1)]$.

Solution:

$$-\left(4x^2 - \frac{1}{4}\right) - \left(8x^2 + \frac{3}{4}x\right) - [(x^2 - 1) - (7x - 1)]$$

First, simplify the expressions inside the bracket and parenthesis,

$$\begin{aligned}
& -\left(4x^2 - \frac{1}{4}\right) - \left(8x^2 + \frac{3}{4}x\right) - [(x^2 - 1) - (7x - 1)] \\
& -\left(4x^2 - \frac{1}{4}\right) - \left(8x^2 + \frac{3}{4}x\right) - (x^2 - 1) + (7x - 1)
\end{aligned}$$

Applying the distributive property, we have,

$$\begin{aligned}
& -\left(4x^2 - \frac{1}{4}\right) - \left(8x^2 + \frac{3}{4}x\right) - (x^2 - 1) + (7x - 1) \\
& -4x^2 + \frac{1}{4} - 8x^2 - \frac{3}{4}x - x^2 + 1 + 7x - 1
\end{aligned}$$

Then, simplifying further, we have,

$$-4x^2 + \frac{1}{4} - 8x^2 - \frac{3}{4}x - x^2 + 1 + 7x - 1$$