These are alleged answers. For each error herein, you get extra-credit points for being the first to report it by e-mail.

1 $(x^2 + 4x + 8) - (x^2 - 4x + 8) = 8x$

2 $(x^2 + 4x + 8)(x^2 - 4x + 8) = x^4 + 64$

3 (a) $\left(-2xy^2\right)^3 = (-2)^3x^3(y^2)^3 = -8x^3y^6$

(b) $$\left(\frac{2a^{-3}}{ac^{-2}}\right)^{-4} = \left(\frac{ac^{-2}}{2a^{-3}}\right)^4 = \left(\frac{aa^3}{2c^2}\right)^4 = \left(\frac{a^4}{2c^2}\right)^4 = \frac{(a^4)^4}{2^4(c^2)^4} = \frac{a^{16}}{16c^8}$$

4 Factoring both denominators and using the "highest appearing power" rule shows us that

$$LCD = (x-3)^2(x+3).$$

And so

$$\begin{aligned}
\frac{2x+5}{x^2-6x+9} - \frac{2x}{x^2-9} &= \frac{2x+5}{(x-3)^2} - \frac{2x}{(x-3)(x+3)} \\
&= \frac{(2x+5)}{(x-3)^2}\frac{(x+3)}{(x+3)} - \left(\frac{2x}{(x-3)(x+3)}\right)\frac{(x-3)}{(x-3)} \\
&= \frac{(2x+5)(x+3) - 2x(x-3)}{(x-3)^2(x+3)} \\
&= \frac{(2x^2+11x+15) - (2x^2-6x)}{(x-3)^2(x+3)} \\
&= \frac{2x^2+11x+15-2x^2 \oplus 6x)}{(x-3)^2(x+3)} \\
&= \frac{17x+15}{(x-3)^2(x+3)}
\end{aligned}$$

5 $24x^3 - 30x^2 + 9x = 3x(8x^2 - 10x + 3) = 3x(4x-3)(2x-1)$