

You may have correctly rewritten the expression as:

$$\frac{s^3(36r^9s^4)^{\frac{1}{2}}}{4s(27r^{12})^{\frac{1}{3}}} = \frac{s^3 \cdot (6^2)^{\frac{1}{2}} \cdot r^{\frac{9}{2}} \cdot s^{\frac{4}{2}}}{4 \cdot s \cdot (3^3)^{\frac{1}{3}} \cdot r^{\frac{12}{3}}}$$

and simplified this down to $\frac{6}{12} \cdot \frac{r^{\frac{9}{2}}}{r^4} \cdot \frac{s^5}{s}$, but then you divided the exponents instead of subtracting them.