Reducing Rationals

Just like the fraction 4/6 can be reduced to 2/3, we can reduce more complicated expressions.

\[
\frac{4a^2c^2}{6a^2c^2} = \frac{2a^2c^2}{3a^2c^2} = \frac{2\cdot 2}{3\cdot 3} = \frac{4}{9}
\]

First, we can factor the constants.

\[
\frac{2\cdot 2}{3} = \frac{3a^2c^2}{9a^2c^2} \cdot \frac{3c^2}{2a} = \frac{9c^4}{18a^3c^2} = \frac{3c^2}{2a}
\]

Next, we factor out things that are shared.

\[
\frac{1\cdot 2}{3} = \frac{3c^2}{2a}
\]

Next, we divide.

\[
\frac{2}{3}
\]