2022 Problem Of The Day

1. (**21 Mar**) Simplify the algebraic fraction $\dfrac{a^4 - a^2b^2}{(a-b)^2} \div \dfrac{a(a+b)}{b^2} \times \dfrac{b}{a}$.

Solution:

$$\begin{aligned}
&\frac{a^4 - a^2b^2}{(a-b)^2} \div \frac{a(a+b)}{b^2} \times \frac{b^2}{a} \\
&= \frac{\cancel{a^2(a+b)(a-b)}}{(a-b)^{\cancel{2}}} \times \frac{b^2}{\cancel{a(a+b)}} \times \frac{b^2}{\cancel{a}} \\
&= \frac{b^4}{a-b}
\end{aligned}$$