



Q-1 / Simplify the following expression:

①
$$\frac{2x^5y + 4x^4y^2 - 4x^2y^4 - 2xy^5}{(x + y)^3(x - y)}$$

Group ()

Names :

1-

2-

3-

4-

5-

6-

②
$$\frac{(3x^2 - 2xy - y^2)(x^2 - y^2)}{(3x^2 + 4xy + y^2)(x - y)^2}$$

③
$$\frac{x^{-1}y^{-1} - \frac{1}{xy} + xy^{-1} - x^{-1}y}{(xy)^{-1}(x-y)(x+y)}$$

Q.2/ Prove that ;

$$\textcircled{1} \quad \begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix} = (a-b)(b-c)(c-a)$$

$$\textcircled{2} \quad \begin{vmatrix} b+c & a & a \\ b & a+c & b \\ c & c & a+b \end{vmatrix} = 4abc$$

Q.3 / If $a, b \in \mathbb{R}$ and $a < 0$, $b < 0$ and $\frac{b}{a} > 1$.

Determine whether $(a-b)$ is positive or negative. (Explain your answer)