Factorizations Ex 7.4 Q1

Answer :

$$
\begin{aligned}
&qr - pr + qs - ps \\
&= (qr - pr) + (qs - ps) \quad [Grouping\ the\ expressions] \\
&= r(q - p) + s(q - p) \\
&= (r + s)(q - p) \qquad [Taking\ (q - p)\ as\ the\ common\ factor]
\end{aligned}
$$

Factorizations Ex 7.4 Q2

Answer :

$$
\begin{aligned}
&p^2q - pr^2 - pq + r^2 \\
&= (p^2q - pq) + (r^2 - pr^2) \quad [Grouping\ the\ expressions] \\
&= pq(p - 1) + r^2(1 - p) \\
&= pq(p - 1) - r^2(p - 1) \quad [\because (1 - p) = -(p - 1)] \\
&= (pq - r^2)(p - 1) \qquad [Taking\ (p - 1)\ as\ the\ common\ factor]
\end{aligned}
$$

Factorizations Ex 7.4 Q3

Answer :

$$
\begin{aligned}
&1 + x + xy + x^2y \\
&= (1 + x) + (xy + x^2y) \quad [Grouping\ the\ expressions] \\
&= (1 + x) + xy(1 + x) \\
&= (1 + xy)(1 + x) \qquad [Taking\ (1 + x)\ as\ the\ common\ factor]
\end{aligned}
$$

Factorizations Ex 7.4 Q4

Answer :

$$
\begin{aligned}
&ax + ay - bx - by \\
&= (ax + ay) - (bx + by) \quad [Grouping\ the\ expressions] \\
&= a(x + y) - b(x + y) \\
&= (a - b)(x + y) \qquad [Taking\ (x + y)\ as\ the\ common\ factor]
\end{aligned}
$$

Factorizations Ex 7.4 Q5

Answer :

$$
\begin{aligned}
&xa^2 + xb^2 - ya^2 - yb^2 \\
&= \left(xa^2 + xb^2\right) - \left(ya^2 + yb^2\right) \quad \left[Grouping\ the\ expressions\right] \\
&= x\left(a^2 + b^2\right) - y\left(a^2 + b^2\right) \\
&= \left(x - y\right)\left(a^2 + b^2\right) \qquad \left[Taking\ \left(a^2 + b^2\right)\ as\ the\ common\ factor\right]
\end{aligned}
$$

********** END **********