

Factorizations Ex 7.4 Q1

Answer:

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

Factorizations Ex 7.4 Q2

Answer:

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

Factorizations Ex 7.4 Q3

Answer:

$$1+x+xy+x^2y$$

= $(1+x)+(xy+x^2y)$ [Grouping the expressions]
= $(1+x)+xy(1+x)$
= $(1+xy)(1+x)$ [Taking $(1+x)$ as the common factor]

Factorizations Ex 7.4 Q4

Answer:

$$ax + ay - bx - by$$

= $(ax + ay) - (bx + by)$ [Grouping the expressions]
= $a(x + y) - b(x + y)$
= $(a - b)(x + y)$ [Taking $(x + y)$ as the common factor]

Factorizations Ex 7.4 Q5

Answer

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

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