Claudia Iribe

7.2.45 **Perform the multiplication.**

$$\frac{3xy-2x^2-y^2}{x+y}\cdot\frac{y^2-x^2}{y^2-2xy}$$

$$\frac{3xy-2x^2-y^2}{x+y}\cdot\frac{y^2-x^2}{y^2-2xy}=\square$$ (Type your answer in factored form.)

$3xy-2x^2-y^2$

$= -2x^2+3xy-y^2$ ← (A)

gives lead ≠ 1

OR $= -y^2+3xy-2x^2$ ← (B)

gives lead = 1.

Either (A) or (B) will work, but I'd choose (B) for two reasons

1 - It will put y-variables first, as they appear in most places in the problem

2 - It gives lead = 1 after factoring out -1.

Usually we have terms organized as

x^2 — xy — y^2

OR as

y^2 — xy — x^2

purely one variable — mixed both variables — purely the other variable

$-y^2+3xy-2x^2$

$= -(y^2-3xy+2x^2)$ $\quad -2 \cdot -1 = 2$, $\quad 2-3=-1$

$= -(y-2x)(y-x)$

Problem gives:

$$\frac{-(y-2x)(y-x)}{(y+x)}\cdot\frac{(y-x)(y+x)}{y(y-2x)}$$

$$= \boxed{\frac{-(y-x)^2}{y}}$$