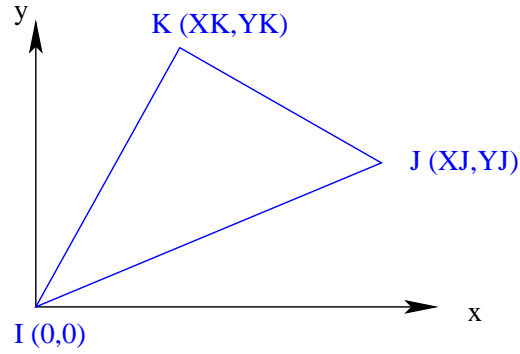


SOLUTION: Problem 5S3



To derive N_J , determine the equation for line I-K:

$$y = \frac{YK}{XK}x$$

Thus a factor for N_J must be:

$$(XKy - YKx)$$

$$N_J = C_J(XKy - YKx)$$

N_J must be equal to unity at (XJ, YJ) , hence

$$N_J = C_J[(XK)(YJ) - (YK)(XJ)] = 1$$

which gives:

$$C_J = \frac{1}{[(XK)(YJ) - (YK)(XJ)]} = -\frac{1}{D}$$

hence

$$N_J = -\frac{1}{D}(XKy - YKx)$$

Likewis, to derive N_K , determine the equation for line I-J:

$$y = \frac{YJ}{XJ}x$$

Thus a factor for N_J must be:

$$(XJy - YJx)$$

$$N_K = C_K(XJy - YJx)$$

N_K must be equal to unity at (XK, YK) , hence

$$N_J = C_J [(XK)(YJ) - (YK)(XJ)] = 1$$

which gives:

$$C_K = \frac{1}{[(XK)(YK) - (YK)(XK)]} = +\frac{1}{D}$$

hence

$$N_K = +\frac{1}{D}(XJy - YJx)$$