37. From the figure, we note that $\vec{c} \perp \vec{b}$, which implies that the angle between $\vec{c}$ and the $+x$ axis is 120°.

(a) Direct application of Eq. 3-5 yields the answers for this and the next few parts. $a_x = a\cos 0° = a = 3.00$ m.

(b) $a_y = a\sin 0° = 0$.

(c) $b_x = b\cos 30° = (4.00\,\text{m})\cos 30° = 3.46$ m.

(d) $b_y = b\sin 30° = (4.00\,\text{m})\sin 30° = 2.00$ m.

(e) $c_x = c\cos 120° = (10.0\,\text{m})\cos 120° = -5.00$ m.

(f) $c_y = c\sin 30° = (10.0\,\text{m})\sin 120° = 8.66$ m.

(g) In terms of components (first x and then y), we must have

$$\begin{aligned} -5.00\,\text{m} &= p(3.00\,\text{m}) + q(3.46\,\text{m}) \\ 8.66\,\text{m} &= p(0) + q(2.00\,\text{m})\ . \end{aligned}$$

Solving these equations, we find $p = -6.67$

(h) and $q = 4.33$ (note that it's easiest to solve for q first). The numbers p and q have no units.