Appendix J1

#4

$$\vec{c} = d\vec{a} + m\vec{b}$$

$$\langle 15, 27 \rangle = d\langle 6, 10 \rangle + m\langle 3, 4 \rangle$$

$$= \langle 6d + 3m, 10d + 4m \rangle$$

Thus

$15 = 6d + 3m$ and $27 = 10d + 4m$

$\Rightarrow$ $5 = 2d + m$

$m = 5 - 2d$

$27 = 10d + 4(5 - 2d)$

$27 = 10d + 20 - 8d$

$7 = 2d$

$3.5 = d$

$m = 5 - 2(3.5)$

$m = 5 - 7$

$m = -2$