Financial Mathematics
Basics of vector spaces

0021-1. Compute $(-2, -3, 4) \cdot (-7, 4, -5)$.

0021-2. Compute $(2, 4, 6, 8) \cdot (1, -2, 3, -4)$.

0021-3. Is $\{(1, -3), (-3, 9)\}$
a linearly independent set in $\mathbb{R}^2$?
Why or why not?

0021-4. Is $\{(1, -3), (-3, 9)\}$
a basis of $\mathbb{R}^2$?
Why or why not?

0021-5. Write $(2, 3, 4)$ as a l.c. of
$(1, 2, 3)$, $(4, 7, 6)$, $(5, 9, 10)$.
Display the coefficients.