

**Readiness Assurance Test**

Choose the most appropriate response for each question.

1) Simplify the following vector expression.

$$2 \begin{bmatrix} 3 \\ -1 \\ 0 \end{bmatrix} - 3 \begin{bmatrix} 0 \\ 2 \\ 1 \end{bmatrix}$$

(a)  $\begin{bmatrix} 0 \\ 4 \\ -7 \end{bmatrix}$

(b)  $\begin{bmatrix} 6 \\ -8 \\ -3 \end{bmatrix}$

(c)  $\begin{bmatrix} 3 \\ 2 \\ -5 \end{bmatrix}$

(d)  $\begin{bmatrix} -2 \\ 0 \\ 1 \end{bmatrix}$

2) Simplify the complex number expression  $-4(3 - 2i) + 2(5 + i)$ .

(a)  $3 - 7i$

(b)  $4 + i$

(c)  $-2 + 10i$

(d)  $-1 - 5i$

3) Simplify  $3f(x) - 2g(x)$  where  $f(x) = 7 - x^2$  and  $g(x) = 2x^3 + x - 1$ .

(a)  $x^3 + 4x - 5$

(b)  $-4x^3 - 3x^2 - 2x + 23$

(c)  $3x^3 + 5x^2 - 3x + 17$

(d)  $-x^3 + 19x^2 - 4$

4) TODO some problems based on module E.