1. Find $(f - g)(x)$ and $(f + g)(4)$ for $f(x) = 4x^2 - 5x + 2$ and $g(x) = 4 + 2x + 2x^2$.

   [A] $(f - g)(x) = 2x^2 - 7x - 2$, $(f + g)(4) = 90$

   [B] $(f - g)(x) = 2x^2 - 7x - 2$, $(f + g)(4) = 38$

   [C] $(f - g)(x) = 8x^2 - 3x + 4$, $(f + g)(4) = 120$

   [D] $(f - g)(x) = 8x^2 - 3x + 4$, $(f + g)(4) = 84$

$$f(x) = 4x^2 - 5x + 2$$

$$f(x) \quad 4x^2 - 5x + 2$$

$$- g(x) - (2x^2 + 2x + 4)$$

$$(f-g)(x) = 2x^2 - 7x - 2$$

$$f(x) = 4x^2 - 5x + 2$$

$$+ g(x) = 2x^2 + 2x + 4$$

$$(f+g)(x) = 6x^2 - 3x + 6$$

$$(f+g)(4) = 6(4)^2 - 3(4) + 6$$

$$= 6 \cdot 16 - 12 + 6$$

$$= 96 - 12 + 6$$

$$= 84 + 6$$

$$= 90$$

2. Given $f(x) = 1 - x^2$ and $(f - g)(x) = -x^2 + x$, find the function g.

   [A] $g(x) = x$ [B] $g(x) = -x + 1$ [C] $g(x) = -x^2 - x + 2$ [D] none of these

$$f(x) \quad -x^2 \quad +0x \quad +1$$

$$- g(x) - (0x^2 - x + 1)$$

$$(f-g)(x) \quad -x^2 + x + 0$$

3. Let $f(x) = 1 - x^2$ and $g(x) = 1 - x$. Find $(f + g)(x)$.

[A] $x^3 - x^2 - x + 1$ [B] $-x^2 + x$ [C] $-x^2 - x + 2$ [D] $1 + x$

$$\begin{array}{c|ccc} & x^2 & x & \# \\ \hline f(x) & -x^2 & +0x & +1 \\ +g(x) & & -x & +1 \\ \hline (f+g)(x) = & -x^2 & -x & +2 \end{array}$$

4. Given $f(x) = 4 - x^2$ and $(f - g)(x) = -x^2 + x + 2$, find the function g.

$$\begin{array}{c|ccc} & x^2 & x & \# \\ \hline f(x) & -x^2 & & 4 \\ -g(x) & -(0x^2 & -x & +2) \\ \hline (f-g)(x) & -x^2 & +x & +2 \end{array}$$

$g(x) = -x + 2$