Γ ΛΥΚΕΙΟΥ ΜΕΡΟΣ Β

31.4 1)

α) $\int_1^4 f(x)+g(x)dx=\int_1^4 f(x)dx+\int_1^4 g(x)dx=1+3=4$

β) $\int_1^4 f(x)-g(x)dx=\int_1^4 f(x)dx-\int_1^4 g(x)dx=1-3=-2$

γ) $\int_1^4 2f(x)+3g(x)dx=\int_1^4 2f(x)dx+\int_1^4 3g(x)dx=2\int_1^4 f(x)dx+3\int_1^4 g(x)dx=$

$=2\cdot 1+3\cdot 3=11$

δ) $\int_1^4 3f(x)-5g(x)dx=\int_1^4 3f(x)dx-\int_1^4 5g(x)dx=3\int_1^4 f(x)dx-5\int_1^4 g(x)dx=$

$=3\cdot 1-5\cdot 3=-12$

ε) $\int_1^4 [2f(x)+7g(x)+3]dx=2\int_1^4 f(x)dx+7\int_1^4 g(x)dx+\int_1^4 3dx=$

$=2\cdot 1+7\cdot 3+3\cdot(4-1)=32$

στ) $\int_4^1 [5g(x)-2f(x)-7]dx=\int_4^1 5g(x)dx-\int_4^1 2f(x)dx7-\int_4^1 7dx=$

$=5\int_4^1 g(x)dx-2\int_4^1 f(x)dx-7\cdot(1-4)=$

$=-5\int_1^4 g(x)dx+2\int_1^4 f(x)dx+21=-5\cdot 3+2\cdot 1+21=8$

31.4 2)

α) $\int_2^7 f(x)+g(x)dx=\int_2^7 f(x)dx+\int_2^7 g(x)dx=4-1=3$

β) $\int_2^7 f(x)-g(x)dx=\int_2^7 f(x)dx-\int_2^7 g(x)dx=4-(-1)=5$

γ) $\int_2^7 4f(x)+2g(x)dx=\int_2^7 4f(x)dx+\int_2^7 2g(x)dx=4\int_2^7 f(x)dx+2\int_2^7 g(x)dx=$

$=4\cdot 4+2\cdot(-1)=14$

δ) $\int_2^7 5f(x)-6g(x)dx=\int_2^7 5f(x)dx-\int_2^7 6g(x)dx=5\int_2^7 f(x)dx-6\int_2^7 g(x)dx=$

$=5\cdot 4-6\cdot(-1)=26$

ε) $\int_2^7 [3f(x)-5g(x)+2]dx=\int_2^7 3f(x)dx-\int_2^7 5g(x)dx+\int_2^7 2dx=$

$=3\int_2^7 f(x)dx-5\int_2^7 g(x)dx+2(7-2)=3\cdot 4-5\cdot(-1)+10=27$

στ) $\int_7^2 [8f(x)-g(x)-10]dx=\int_7^2 8f(x)dx-\int_7^2 g(x)dx-\int_7^2 10dx=$

$$= -8\int_2^7 f(x)dx + \int_2^7 g(x)dx - 10(2-7) = -8\cdot 4 + (-1) + 50 = 17$$

31.4 3)

α) $\int_{-3}^{1} f(x) + g(x)dx = \int_{-3}^{1} f(x)dx + \int_{-3}^{1} g(x)dx 5 + 6 = 11$

β) $\int_{-3}^{1} f(x) - g(x)dx = \int_{-3}^{1} f(x)dx - \int_{-3}^{1} g(x)dx = 5 - 6 = -1$

γ) $\int_{-3}^{1} 4f(x) + 2g(x)dx = \int_{-3}^{1} 4f(x)dx + \int_{-3}^{1} 2g(x)dx = 4\int_{-3}^{1} f(x)dx + 2\int_{-3}^{1} g(x)dx =$

$= 4\cdot 5 + 2\cdot 6 = 32$

δ) $\int_{-3}^{1} 5f(x) - 6g(x)dx = \int_{-3}^{1} 5f(x)dx - \int_{-3}^{1} 6g(x)dx = 5\int_{-3}^{1} f(x)dx - 6\int_{-3}^{1} g(x)dx =$

$= 5\cdot 5 - 6\cdot 6 = -11$

ε) $\int_{-3}^{1} [3f(x) - 5g(x) + 2]dx = \int_{-3}^{1} 3f(x)dx - \int_{-3}^{1} 5g(x)dx + \int_{-3}^{1} 2dx =$

$= 3\int_{-3}^{1} f(x)dx - 5\int_{-3}^{1} g(x)dx + 2[1-(-3)] = 3\cdot 5 - 5\cdot 6 + 2\cdot 4 = -7$

στ) $\int_{1}^{-3} [2f(x) - g(x) - 5]dx = \int_{1}^{-3} 2f(x)dx - \int_{1}^{-3} g(x)dx - \int_{1}^{-3} 5dx =$

$= -2\int_{-3}^{1} f(x)dx + \int_{-3}^{1} g(x)dx - 5(-3-1) = -2\cdot 5 + 6 - 5\cdot(-4) = 16$