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$$\begin{aligned}
 \text{a)} \quad & \int_1^3 5 \left(f(x) - \frac{1}{2} g(x) \right) dx \\
 &= 5 \int_1^3 \left(f(x) - \frac{1}{2} g(x) \right) dx \\
 &= 5 \left[\int_1^3 f(x) dx - \frac{1}{2} \int_1^3 g(x) dx \right] \\
 &= 5 \left[3 - \frac{1}{2} \left(\int_1^3 g(x) dx + \int_3^7 5(x) dx \right) \right] \\
 &= 5 \left[3 - \frac{1}{2} (-5 - 3) \right] \\
 &= 5 \left[3 - \frac{1}{2} (-8) \right] \\
 &= 5 [3 + 4] \\
 &= 5 \cdot 7 \\
 &= 35
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} \quad & \int_1^7 -2 f(x) dx + \int_1^7 6 g(x) dx \\
 &= -2 \int_1^7 f(x) dx + 6 \int_1^7 g(x) dx \\
 &= -2 \cdot 3 + 6 (-8) \\
 &= -6 - 48 \\
 &= -54
 \end{aligned}$$

$$\begin{aligned}
 c) \int_1^3 3(f(x) + g(x)) dx & \\
 &= 3 \int_1^3 f(x) + \int_1^3 g(x) \\
 &= 3(3 + (-8)) \\
 &= 3(-5) \\
 &= 3 \cdot -5 \\
 &= -15
 \end{aligned}$$

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$$\begin{aligned}
 a) \int_2^3 x dx & \\
 &= \frac{x^2}{2} \Big|_2^3 = \frac{3^2}{2} - \frac{2^2}{2} = \frac{9-4}{2} = \frac{5}{2} \\
 &= 2.5 \times 5 \\
 &= 12.5
 \end{aligned}$$

$$\begin{aligned}
 b) \int_0^6 \sqrt[3]{x} & \\
 &= \int_0^6 x^{1/3} dx = \frac{1}{\frac{1}{3} + 1} = \frac{1}{\frac{4}{3}} = \frac{3}{4} \\
 &= \int_0^6 \frac{x^{1/3}}{\frac{4}{3}} = \int_0^6 \frac{3x^{1/3}}{4} = \frac{3}{4} \int_0^6 \sqrt[3]{x} \\
 &= \int_0^6 \frac{3\sqrt[3]{x}}{4} \Big|_0^6 = \frac{3\sqrt[3]{6^3}}{4} - \frac{3\sqrt[3]{0^3}}{4} = \frac{3 \cdot 11}{4} - \frac{0}{4} \\
 &= \frac{33}{4} - \frac{0}{4} = \frac{33}{4} = 8.25
 \end{aligned}$$

$$\begin{aligned}
 c) \int_0^3 \frac{x}{2} + 1 & \\
 &= \frac{x^2}{2} = \frac{x^2}{4} \Big|_0^3 = \frac{3^2}{4} - \frac{0^2}{4} \\
 &= \frac{9}{4} = 2.25
 \end{aligned}$$