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sect 24

$$1.) \int (3x^2y^3z^2 + yz) dx = x^3y^3z^2 + xyz + g(y,z) \quad \text{curl}(F) = 0$$
$$\int (3x^3y^3z^2 + xy) dz = x^3y^3z^2 + xyz + g(x,y) = F = x^3y^3z^2 + xyz$$
$$g(y,z) = g(x,z) = g(x,y)$$

$$2.) \int_0^1 \int_0^1 5 - 10 \, dx \, dy = \boxed{-5}$$