(5) $\int (x^2-3x+8)\, e^{\frac{x}{2}}\, dx = \left| \begin{array}{ll} u = x^2-3x+8 & u' = 2x-3 \\ v' = e^{\frac{x}{2}} & v = \frac{e^{\frac{x}{2}}}{\frac{1}{2}} = 2e^{\frac{x}{2}} \end{array} \right| =$

$= (x^2-3x+8)\cdot 2e^{\frac{x}{2}} - \int (2x-3)\cdot 2e^{\frac{x}{2}}\, dx =$

$= \left| \begin{array}{ll} u = 2x-3 & u' = 2 \\ v' = 2e^{\frac{x}{2}} & v = \frac{2e^{\frac{x}{2}}}{\frac{1}{2}} = 4e^{\frac{x}{2}} \end{array} \right| =$

$= (2x^2-6x+16)\, e^{\frac{x}{2}} - \left[(2x-3)\cdot 4e^{\frac{x}{2}} - \int 2\cdot 4e^{\frac{x}{2}}\, dx \right] =$

$= (2x^2-6x+16)\, e^{\frac{x}{2}} - (8x-12)\, e^{\frac{x}{2}} + \int 8e^{\frac{x}{2}}\, dx =$

$= e^{\frac{x}{2}}\cdot (2x^2-14x+28) + 8\frac{e^{\frac{x}{2}}}{\frac{1}{2}} =$

$= e^{\frac{x}{2}}\cdot (2x^2-14x+44) + c$