

Solution (#1625) We find

$$-12xz' + 24z = 12 + 5x, \quad z(1) = \frac{1}{1} = 1.$$

The integrating factor is x^{-2} and we ultimately find

$$z = \frac{(x+2)(x+3)}{12}, \quad y = \frac{12}{(x+2)(x+3)}.$$