5. $\dfrac{\partial w}{\partial t} = \dfrac{\partial^2 w}{\partial x^2} + a + be^{\lambda w}.$

Traveling-wave solutions (the signs are chosen arbitrarily):

$$w(x,t) = -\frac{2}{\lambda}\ln\left[\pm\beta + C\exp\left(\pm\mu x - \tfrac{1}{2}a\lambda t\right)\right], \qquad \beta = \sqrt{-\frac{b}{a}},\ \mu = \sqrt{\frac{a\lambda}{2}},$$

where C is an arbitrary constant.

References

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