



5.
$$\frac{\partial w}{\partial t} = a \frac{\partial}{\partial x} \left(w^{2n} \frac{\partial w}{\partial x} \right) + bw^{1-n}.$$

Generalized traveling-wave solution:

$$w(x, t) = \left[\pm \frac{x + C_1}{\sqrt{C_2 - kt}} - \frac{bn^2}{3a(n+1)}(C_2 - kt) \right]^{1/n}, \quad k = \frac{2a(n+1)}{n},$$

where C_1 and C_2 are arbitrary constants.

Reference

Polyanin, A. D. and Zaitsev, V. F., *Handbook of Nonlinear Partial Differential Equations*, Chapman & Hall/CRC, Boca Raton, 2004.