3-1

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In Problems 1-26 find the orthogonal trajectories of the given family of curves.

1

$$y = c_1 x$$

5

$$c_1 x^2 + y^2 = 1$$

9

$$y^2 = c_1 x^3 13$$

17

$$y = \frac{c_1}{1 + x^2}$$

21

$$y = \frac{1}{\ln c_1 x}$$

25

$$x^{1/3} + y^{1/3} = c_1$$

Answers:

1

$$x^2 + y^2 = c_2^2$$

5

$$2 \ln |y| = x^2 + y^2 + c_2$$

9

$$2x^2 + 3y^2 = c_2$$

13

$$y^2 \ln |y| + x^2 = c_2 y^2$$

17

$$2y^2 = 2 \ln |x| + x^2 + c_2$$

21

$$2y^3 = 3x^2 + c_2$$

25

$$y^{5/3} = x^{5/3} + c_2$$