Section 1.1

20. \( C = 11 \)

28. \( y' = (y - 0)/(x - x/2) = 2y/x \)

Section 1.2

6. \( y = [(x^2 + 9)^{3/2} - 125]/3 \)

16. \( x = (4/3)(t + 4)^{3/2} - 5t - 29/3 \)

24. \( v = -32t - 40 \) and \( y = -6t^2 - 40t + 555 \). The ball hits the ground \((y = 0)\) when \( t = 4.77 \) sec, with velocity \( v = v(4.77) = -192.64 \) ft/sec, an impact speed of about 131 mph.

Section 1.3

12. Each isocline \( x + y = C \) is a straight line with slope \( m = -1 \).

16. Each isocline \( x^2 - y^2 = C \) is a hyperbola that opens along the x-axis if \( C > 0 \), along the y-axis if \( C < 0 \).