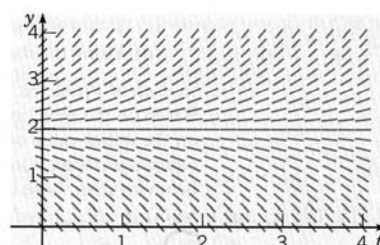
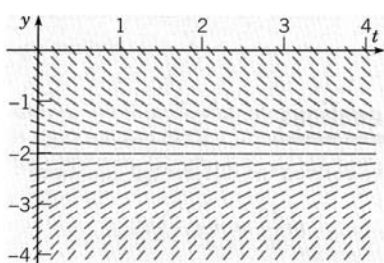


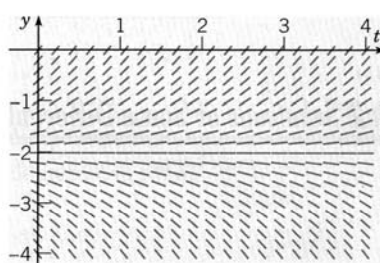
**FIGURE 1.1.5** Direction field for Problem 15.



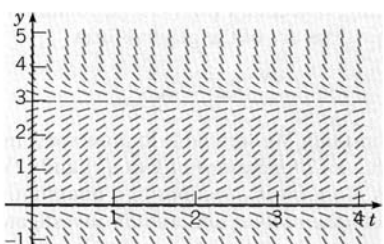
**FIGURE 1.1.6** Direction field for Problem 16.



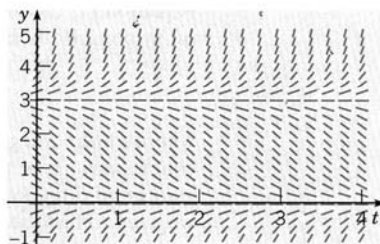
**FIGURE 1.1.7** Direction field for Problem 17.



**FIGURE 1.1.8** Direction field for Problem 18.



**FIGURE 1.1.9** Direction field for Problem 19.



**FIGURE 1.1.10** Direction field for Problem 20.

25. For small, slowly falling objects, the assumption made in the text that the drag force is proportional to the velocity is a good one. For larger, more rapidly falling objects, it is more accurate to assume that the drag force is proportional to the square of the velocity.<sup>2</sup>
- Write a differential equation for the velocity of a falling object of mass  $m$  if the drag force is proportional to the square of the velocity.
  - Determine the limiting velocity after a long time.