

SECTION 2.2

1. $(x^2 + 1)^2 y = c.$
3. $r^2 + s = c(1 - r^2 s).$
5. $r \sin^2 \theta = c.$
7. $(x + 1)^6 (y^2 + 1) = c(x + 2)^4.$
9. $y^2 + xy = cx^3.$
11. $\sin \frac{y}{x} = cx.$
13. $(x^2 + y^2)^{3/2} = x^3 \ln cx^3.$
15. $x + 4 = (y + 2)^2 e^{-(y+1)}.$
17. $16(x + 3)(x + 2)^2 = 9(y^2 + 4)^2.$
19. $(2x + y)^2 = 12(y - x).$
23. (a) $x^3 - y^3 + 6xy^2 = c.$
(b) $2x^3 + 3x^2y + 3xy^2 = c.$

SECTION 2.3

1. $y = x^3 + cx^{-3}.$
3. $y = (x^3 + c)e^{-3x}.$
5. $x = 1 + ce^{1/t}.$
7. $3(x^2 + x)y = x^3 - 3x + c.$
9. $y = x^{-1}(1 + ce^{-x}).$
11. $r = (\theta + c)\cos \theta.$
13. $2(1 + \sin x)y = x + \sin x \cos x + c.$
15. $y = (1 + cx^{-1})^{-1}.$
17. $y = (2 + ce^{-8x^2})^{1/4}.$
19. $y = x^4 - 2x^2.$
21. $y = (e^x + 1)^2.$
23. $2r = \sin 2\theta + \sqrt{2} \cos \theta.$
25. $x^2y^4 = x^4 + 15.$
27. $y = \begin{cases} 2(1 - e^{-x}), & 0 \leq x < 1, \\ 2(e - 1)e^{-x}, & x \geq 1. \end{cases}$
29. $y = \begin{cases} e^{-x}(x + 1), & 0 \leq x < 2, \\ 2e^{-x} + e^{-2}, & x \geq 2. \end{cases}$
31. (a) $y = \frac{ke^{-\lambda x}}{b - a\lambda} + ce^{-bx/a}$ if $\lambda \neq b/a;$
 $y = \frac{kxe^{-bx/a}}{a} + ce^{-bx/a}$ if $\lambda = b/a.$
35. (b) $y = \sin x - \cos x + \sin 2x - 2 \cos 2x + ce^{-x}.$
37. (a) $2x \sin y - x^2 = c.$
(b) $y^2 + 2y + ce^{-x^2} - 1 = 0.$
39. $y = (x - 2 + ce^{-x})^{-1} + 1.$
41. $y = (2 + ce^{-2x^2})^{-1} + x.$

SECTION 2.3. MISCELLANEOUS EXERCISES

1. $(x^3 + 1)^2 = |cy|.$
3. $xy + 1 = c(x + 1).$