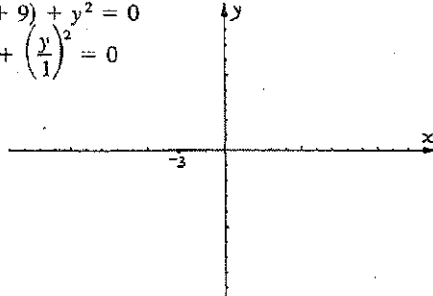
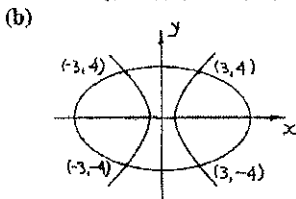


16. $x^2 + y^2 + 6x + 9 = 0$
 $(x^2 + 6x + 9) + y^2 = 0$
 $\left(\frac{x+3}{1}\right)^2 + \left(\frac{y}{1}\right)^2 = 0$

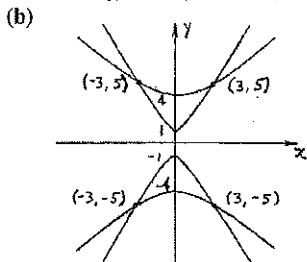


EXERCISE 12-4, page 374; Systems of Quadratics

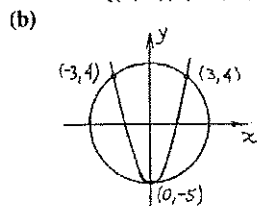
1. (a) $2x^2 + 5y^2 = 98$
 $\frac{2x^2 - y^2 = 2}{6y^2 = 96}$
 $y = 4, -4$
 $x = \pm 3, \pm 3$
 $S = \{(3, 4), (3, -4), (-3, 4), (-3, -4)\}$



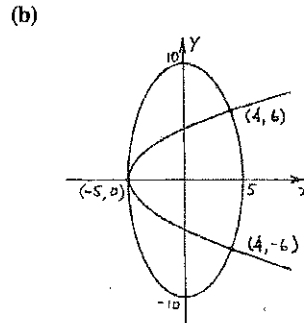
2. (a) $x^2 - y^2 = -16$
 $\frac{8x^2 - 3y^2 = -3}{5x^2 = 45}$
 $x = 3, -3$
 $y = \pm 5, \pm 5$
 $S = \{(3, 5), (3, -5), (-3, 5), (-3, -5)\}$



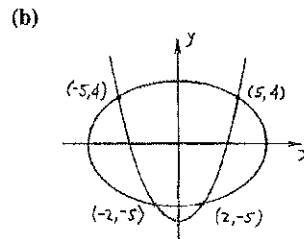
3. (a) $x^2 + y^2 = 25$
 $\frac{y - x^2 = -5}{y^2 + y = 20}$
 $y^2 + y - 20 = 0$
 $y = 4, -5$
 $x = \pm 3, 0$
 $S = \{(3, 4), (-3, 4), (0, -5)\}$



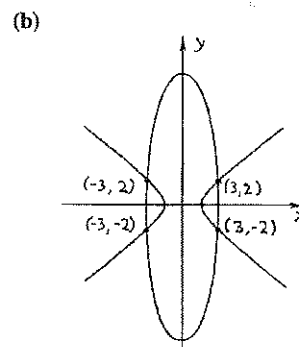
4. (a) $4x^2 + y^2 = 100$
 $\frac{4x - y^2 = -20}{4x^2 + 4x = 80}$
 $x^2 + x - 20 = 0$
 $x = 4, -5$
 $y = \pm 6, 0$
 $S = \{(4, 6), (4, -6), (-5, 0)\}$



5. (a) $3x^2 + 7y^2 = 187$
 $\frac{3x^2 - 7y = 47}{7y^2 + 7y = 140}$
 $y^2 + y - 20 = 0$
 $y = 4, -5$
 $x = \pm 5, \pm 2$
 $S = \{(5, 4), (-5, 4), (2, -5), (-2, -5)\}$



6. (a) $9x^2 + y^2 = 85$
 $\frac{2x^2 - 3y^2 = 6}{29x^2 = 261}$
 $x^2 = 9$
 $x = 3, -3$
 $y = \pm 2, \pm 2$
 $S = \{(3, 2), (3, -2), (-3, 2), (-3, -2)\}$



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