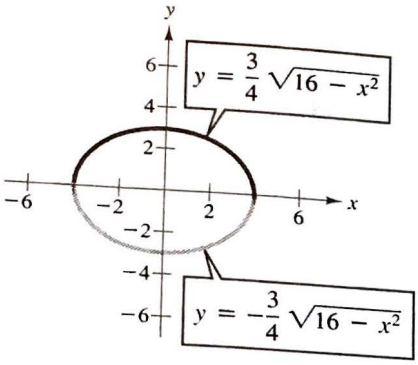
23. $y' = -\dfrac{9x}{16y}$



29. $\dfrac{3x}{4y}$

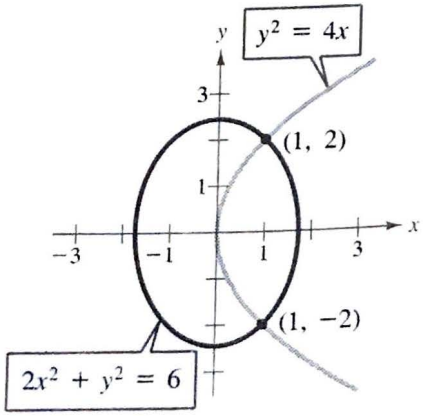
e: $4x + 3y - 25 = 0$
e: $3x - 4y = 0$

e: $3x - 4y + 25 = 0$
e: $4x + 3y = 0$
ts: $(-4, 0)$, $(-4, 10)$
$(0, 5)$, $(-8, 5)$

10
8
(0, 5)
2
x
2

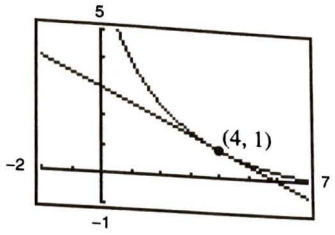
−1
a: 1

1
a: −1



$x + y = 0$ y

41. $x + 2y - 6 = 0$



Section 3.7

1. (a) $\frac{3}{4}$ (b) 20 **3.** (a) $-\frac{5}{8}$ (b) $\frac{3}{2}$
5. (a) 24π in.^{2}/min (b) 96π in.^{2}/min
7. If dr/dt is constant, dA/dt is proportional to r.
9. (a) $\dfrac{5}{\pi}$ ft/min (b) $\dfrac{5}{4\pi}$ ft/min
11. $\dfrac{8}{405\pi}$ ft/min
13. (a) 9 cm^3/sec (b) 900 cm^3/sec
15. (a) 0 cm/min (b) 12 cm/min
17. (a) $\frac{8}{25}$ cm/min (b) 0 cm/min
(c) $-\frac{8}{25}$ cm/min (d) -0.0039 cm/min
19. (a) 24.6% (b) $\frac{1}{64}$ ft/min
21. (a) $-\frac{7}{12}$ ft/sec (b) $-\frac{3}{2}$ ft/sec (c) $-\frac{48}{7}$ ft/sec
23. 21.96 ft^2/sec
25. (a) −750 mi/hr (b) 20 minutes
27. $-\dfrac{28}{\sqrt{10}} \approx -8.85$ ft/sec
29. (a) $\frac{25}{3}$ ft/sec (b) $\frac{10}{3}$ ft/sec
33. $v^{0.3}\left(1.3p\dfrac{dv}{dt} + v\dfrac{dp}{dt}\right) = 0$

Review Exercises for Chapter 3

1. $3x(x - 2)$ **3.** $\dfrac{x + 1}{2x^{3/2}}$ **5.** $-\dfrac{4}{3t^3}$

7. $\dfrac{3x^2}{2\sqrt{x^3 + 1}}$ **9.** $2(6x^3 - 9x^2 + 16x - 7)$

11. $s(s^2 - 1)^{3/2}(8s^3 - 3s + 25)$ **13.** $\dfrac{2x(2 - x)}{(x - 1)^2}$

$\dfrac{x^2 + 1}{}$ **17.** $32x - 128x^3$