H6

A

[Ex 3.5, p201]

In Exercises below write the function in the form $y = f(u)$ and $u = g(x)$. Then find dy/dx as a function of x.

9. $y = (2x + 1)^5$

10. $y = (4 - 3x)^9$

14. $y = \left(\frac{x}{5} + \frac{1}{5x}\right)^5$

B

In Exercises below find a parametrization for the curve.

81. the line segment with endpoints $(-1, -3)$ and $(4, 1)$

82. the line segment with endpoints $(-1, 3)$ and $(3, -2)$

84. the left half of the parabola $y = x^2 + 2x$

C

[Ex 3.6, p211]

Use implicit differentiation to find dy/dx in Exercises below.

19. $x^2y + xy^2 = 6$

20. $x^3 + y^3 = 18xy$

25. $y^2 = \frac{x - 1}{x + 1}$

D

[Ex 3.7, p218]

4. Volume The radius r and height h of a right circular cone are related to the cone's volume V by the equation $V = (1/3)\pi r^2 h$.

a. How is dV/dt related to dh/dt if r is constant?

b. How is dV/dt related to dr/dt if h is constant?

c. How is dV/dt related to dr/dt and dh/dt if neither r nor h is constant?