

For each problem, find the differential dy .

1) $y = \sqrt{x}$

2) $y = x^3 + 2$

3) $y = \frac{3}{x}$

4) $y = -x^3 - 1$

For each problem, find the general formulas for dy and Δy .

5) $y = x^2 + 4x$

6) $y = \sqrt{x}$

7) $y = \frac{1}{x}$

8) $y = -x^2 + 3$

For each problem, find dy and Δy , given x_0 and $dx = \Delta x$.

9) $y = -\sqrt{x}; x_0 = 6, dx = \Delta x = -4$

10) $y = -x^2 + 4; x_0 = 1, dx = \Delta x = -1$

11) $y = x^2 + 2x; x_0 = 1, dx = \Delta x = -1$

12) $y = -x^3 + 1; x_0 = 1, dx = \Delta x = -\frac{3}{2}$