

1. $\int_{-\infty}^{\infty} \delta(x) dx = 1$
 2. $\int_{-\infty}^{\infty} \delta(x) f(x) dx = f(0)$
 3. $\int_{-\infty}^{\infty} \delta(x) dx = 1$
 4. $\int_{-\infty}^{\infty} \delta(x) f(x) dx = f(0)$
 5. $\int_{-\infty}^{\infty} \delta(x) dx = 1$
 6. $\int_{-\infty}^{\infty} \delta(x) f(x) dx = f(0)$
 7. $\int_{-\infty}^{\infty} \delta(x) dx = 1$
 8. $\int_{-\infty}^{\infty} \delta(x) f(x) dx = f(0)$
 9. $\int_{-\infty}^{\infty} \delta(x) dx = 1$
 10. $\int_{-\infty}^{\infty} \delta(x) f(x) dx = f(0)$

1. $\int_{-\infty}^{\infty} \delta(x) dx = 1$
 2. $\int_{-\infty}^{\infty} \delta(x) f(x) dx = f(0)$



1. $\frac{1}{x^2} = x^{-2}$
 $\frac{d}{dx} x^{-2} = -2x^{-3} = -\frac{2}{x^3}$
 2. $\frac{1}{x^3} = x^{-3}$
 $\frac{d}{dx} x^{-3} = -3x^{-4} = -\frac{3}{x^4}$
 3. $\frac{1}{x^4} = x^{-4}$
 $\frac{d}{dx} x^{-4} = -4x^{-5} = -\frac{4}{x^5}$
 4. $\frac{1}{x^5} = x^{-5}$
 $\frac{d}{dx} x^{-5} = -5x^{-6} = -\frac{5}{x^6}$
 5. $\frac{1}{x^6} = x^{-6}$
 $\frac{d}{dx} x^{-6} = -6x^{-7} = -\frac{6}{x^7}$
 6. $\frac{1}{x^7} = x^{-7}$
 $\frac{d}{dx} x^{-7} = -7x^{-8} = -\frac{7}{x^8}$
 7. $\frac{1}{x^8} = x^{-8}$
 $\frac{d}{dx} x^{-8} = -8x^{-9} = -\frac{8}{x^9}$
 8. $\frac{1}{x^9} = x^{-9}$
 $\frac{d}{dx} x^{-9} = -9x^{-10} = -\frac{9}{x^{10}}$
 9. $\frac{1}{x^{10}} = x^{-10}$
 $\frac{d}{dx} x^{-10} = -10x^{-11} = -\frac{10}{x^{11}}$

10. $\frac{1}{x^{11}} = x^{-11}$
 $\frac{d}{dx} x^{-11} = -11x^{-12} = -\frac{11}{x^{12}}$
 11. $\frac{1}{x^{12}} = x^{-12}$
 $\frac{d}{dx} x^{-12} = -12x^{-13} = -\frac{12}{x^{13}}$

45. 2. $\frac{d}{dx} \left(\frac{1}{x^2} \right) = \frac{d}{dx} x^{-2} = -2x^{-3} = -\frac{2}{x^3}$
 $\frac{d}{dx} \left(\frac{1}{x^3} \right) = \frac{d}{dx} x^{-3} = -3x^{-4} = -\frac{3}{x^4}$
 $\frac{d}{dx} \left(\frac{1}{x^4} \right) = \frac{d}{dx} x^{-4} = -4x^{-5} = -\frac{4}{x^5}$
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 $\frac{d}{dx} \left(\frac{1}{x^{12}} \right) = \frac{d}{dx} x^{-12} = -12x^{-13} = -\frac{12}{x^{13}}$

