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Worksheet 22

1. Find the general antiderivative of each of the following.

(a) $f(x) = x^3$

(b) $f(x) = x^{-3}$

(c) $f(x) = x^{-1}$

2. Compute.

(a) $\displaystyle\int 2\cos(x)\ dx$

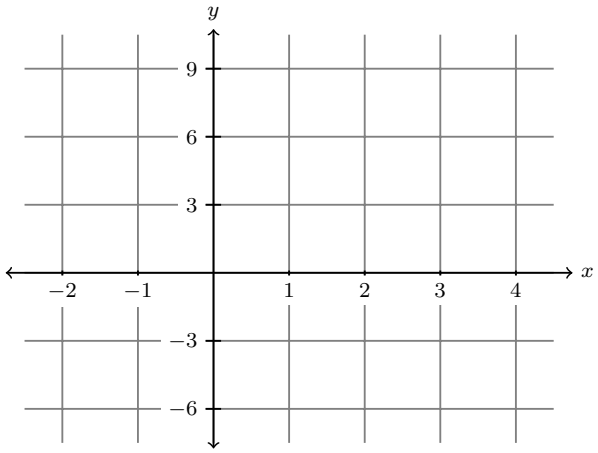
(b) $\displaystyle\int \cos(2x)\ dx$

(c) $\displaystyle\int \left(17\sec^2(x) + \frac{1}{1+x^2}\right) dx$

3. Consider the function $f(x) = x^3 - 6x$.

(a) Graph $f(x)$ over the interval $[0, 3]$.

Hint: start with $(3, f(3))$ *and the zeros of* f*.*



(b) Find the (net) area between $f(x)$ and the x-axis over $[0, 3]$.

Hint: do this by computing $\int_0^3 \left(x^3 - 6x\right) dx$ *using the FTC.*