1. Evaluate each of the following integrals. (Continued on the next page.)

(a) $\displaystyle\int \frac{x^3}{(1+x^2)^2}\, dx$

(d) $\displaystyle\int \frac{\cos(x)}{2 - \sin(x)}\, dx$

(b) $\displaystyle\int \frac{x}{x^2 - 16}\, dx$

(e) $\displaystyle\int \frac{1}{\sqrt{9 - x^2}}\, dx$

(c) $\displaystyle\int_0^{\frac{\pi}{3}} \cos^3(x)\, dx$

(f) $\displaystyle\int_{-\frac{\pi}{4}}^{-\frac{\pi}{6}} \cot^2(x)\csc^2(x)\, dx$

(g) $\displaystyle\int \cos(4x)\sin(9x)\,dx$

(j) $\displaystyle\int \sqrt{1+x^2}\,dx$

(h) $\displaystyle\int \tan^3(x)\sec(x)\,dx$

(k) $\displaystyle\int \frac{4x}{(4-x^2)^2}\,dx$

(i) $\displaystyle\int \sin^7(x)\cos^5(x)\,dx$

(l) $\displaystyle\int \frac{5}{x^3\sqrt{x^2-4}}\,dx$

2. Do #32 in section 9.2 (page 467).

3. Find the centroid of the region in the first quadrant that is bounded by the graphs of $y = \dfrac{x}{\sqrt{25 - x^2}}$, $x = 0$, and $x = 4$.