(31)
a. $\int \sqrt{x^{3}+4} d x$
b. $\int\left(\sqrt{x^{3}}+4\right) d x$
$\int\left(x^{3}+14\right)^{1 / 2}$

$$
\begin{gathered}
\int\left(x^{\frac{3}{2}}+4\right) d x \\
\int x^{\frac{3}{2}} d x+\int 4 d x \\
\frac{2}{5} x^{\frac{5}{2}}+4 x+c
\end{gathered}
$$

$$
N / A \quad \int x^{\frac{3}{2}} d x+\int 4 d x
$$

( 9

$$
\begin{aligned}
\int \frac{x^{\frac{1}{3}}-3}{x^{\frac{-}{3}}} d x & =\int \frac{x^{\frac{1}{3}}}{x^{\frac{1}{3}}} d x-3 \int \frac{1}{x^{\frac{3}{3}}} d x \\
& =\int x^{-\frac{1}{3}} d x-3 \int x^{-\frac{2}{3}} d x \\
& =\frac{3}{2} x^{\frac{2}{3}}-3\left(3 x^{\frac{1}{3}}\right) \\
& =\frac{3}{2} x^{\frac{2}{3}}-9 x^{\frac{1}{3}}+c
\end{aligned}
$$

(65)

$$
\begin{aligned}
& \int\left(x \sin 2 x+\frac{x^{2} \cos 2 x}{f(x)} g^{\prime \prime}(x) d x\right. \\
& f^{\prime}(x) g(x)+f(x) g^{\prime \prime}(x) \\
& \begin{array}{l}
\frac{1}{2} x^{2} \sin 2 x+C \\
f(x) \quad g(x)
\end{array} \\
& f^{\prime \prime}(x) g(x)+\underset{f(x)}{ }+\frac{1}{2} g^{2}(x)
\end{aligned}
$$

(45)

$$
\begin{aligned}
& f^{\prime \prime \prime}(x)=4-2 x^{-3} \\
& f^{\prime \prime}(x)=4 x+x^{-2}+c \\
& f^{\prime}(x)=2 x^{2}-x^{-1}+c_{2} x+c_{2} \\
& f(x)=\frac{2}{3} x^{3}-\ln |x|+\frac{1}{2} c_{1} x^{2}+c_{2} x+c_{3}
\end{aligned}
$$

(49) sind $^{\prime \prime}=v^{\prime \prime}(t)=a(t)=3 \sin t+1$

$$
v(0)=0
$$

S" 1 (t)

$$
s^{\prime}(t)=v(t)=-3 \cos t+t+3 \quad s(0)=4 \quad \begin{aligned}
s(t)=-3 \sin t+\frac{1}{2} t^{2}+3 t+4(0)=-3 \cos 0+0+c & =0 \\
-3+c & =0 \\
c & =3 \\
s(0)=-3 \sin 0+\frac{1}{2}(0)^{2}+3(0)+c & =4 \\
c & =4
\end{aligned}
$$

$$
\begin{aligned}
& 1^{2}+2^{2}+3^{2}+\ldots+19^{2}+26^{2} \\
& \sum_{i=1}^{20} i^{2}=
\end{aligned}
$$

Ex.1

$$
\begin{aligned}
& \sqrt{1}+\sqrt{2}+\sqrt{3}+\ldots+\sqrt{10}= \\
& \sum_{i=1}^{10} \sqrt{i}+ \\
& 3^{3}+4^{3}+5^{3}+\ldots+45^{3}=
\end{aligned}
$$

