- A rectangle whose sides are changing in length has a constant area of 10%square meters. Find the length of the rectangle when its width is decreasing ala rate of 1 m/sec and its length is increasing at a rate of 10 m/sec.
- ? bank account was exponential. The initial deposit was \$1000, and a year later The interest was compounded continuously, so the growth of the money in the from the time of the initial deposit? \$1100 was in the account. How much money would be in the account 10 years

Jse integration by parts to compute the following integrals:

$$\int xe^x dx$$

4.
$$\int \ln x \, dx$$

5.
$$\int x \ln x d$$

6.
$$\int 2x \cos x \, dx$$

$$\int x \sin x \, dx$$

$$\ln x \, dx$$
 5. $\int x \ln x \, dx$

$$y = \frac{\sin x \cos x}{x^2}$$

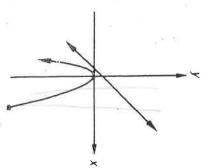
Is the graph of $y = x^2 + \cos x$ symmetric about the y axis, the origin, or neither?

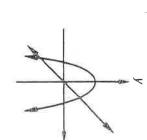
10. Find:
$$\frac{d}{dx} \frac{xe^{\cos 3x}}{x^3 + 1}$$

If
$$y = \arcsin x^2$$
, find y'

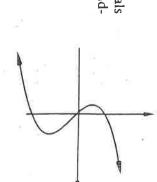
12. Integrate:
$$\int \frac{\cos x}{\sqrt{\sin x + 1}} dx + \int x^{-5} dx$$

- Evaluate by using the change of variable method: $\int_0^{\pi/4} (\cos 2x) (e^{\sin 2x}) dx$
- $y = -x^2$, and the lines x = 1 and bounded by the graphs of y = 1 + x, Find the area of the region
 - 15. Find the area of the region com $y = 2 - x^2 \text{ and } y = x.$ pletely enclosed by the graphs of





- 6 Write a definite integral whose value equals rant bounded by x = y(y - 1)(y + 2). the area of the region in the fourth quad-
- Evaluate $f^{-1}(3)$ if f(x) = 4x 12.



- **18.** If $\int_{-1}^{3} f(x) dx = 7$ and $\int_{-1}^{3} f(x) dx = -3$, find $\int_{3}^{3} f(x) dx$.
- The function $f(x) = \ln(\cos x)$ is defined for all x in which of the following intervals?

(a)
$$0 < x < \frac{\pi}{2}$$
 (b) $-\frac{\pi}{2} \le x \le \frac{\pi}{2}$ (c) $0 < x \le 2\pi$

$$(d) \quad -\pi \le x \le \frac{\pi}{2}$$

20. Indicate which of the following equations describes a curve which satisfies the lies on the curve. following property: For every point (x, y) which lies on the curve, (-x, -y) als

$$y = x$$
 (b) $x^2 + y^2 = 1$ (c) $y = 2x + 1$ (d) $x^3 + y^3 = 1$