

## Exercise 5

In Exercises 1 through 5, use the method described in Sec. 88 and illustrated in Example 1, Sec. 89, to find the function  $f(t)$  corresponding to the given function  $F(s)$ .

$$F(s) = \frac{8a^3 s^2}{(s^2 + a^2)^3} \quad (a > 0).$$

*Suggestion:* Refer to Exercise 5, Sec. 72, for the principal part of  $F(s)$  at  $s = ai$ .

*Ans.*  $f(t) = (1 + a^2 t^2) \sin at - at \cos at$ .