

13.43 Find the final values of the time function $f(t)$ given that

$$(a) \quad F(s) = \frac{10(s + 6)}{(s + 2)(s + 3)}$$

$$(b) \quad F(s) = \frac{2}{s^2 + 4s + 8}$$

SOLUTION:

Initial value

$$a) \quad \lim_{s \rightarrow \infty} s F(s) = \frac{10(\infty)^2}{\infty^2} = 10$$

$$\boxed{\lim_{t \rightarrow 0} f(t) = 10}$$

$$b) \quad \lim_{s \rightarrow \infty} s F(s) = \frac{2(\infty)}{\infty^2} = 0$$

$$\boxed{\lim_{t \rightarrow 0} f(t) = 0}$$

Final value

$$a) \quad \lim_{s \rightarrow 0} s F(s) = 0$$

$$\boxed{\lim_{t \rightarrow \infty} f(t) = 0}$$

$$b) \quad \lim_{s \rightarrow 0} s F(s) = 0$$

$$\boxed{\lim_{t \rightarrow \infty} f(t) = 0}$$