Drop & Drag

Multiplication by t^n

Find Laplace transform for $L\{2te^{5t}\}$ *by using the multiplication by* t^n *theorem:*

1

$L\{2te^{5t}\} = (-1)^1 \frac{d^1}{ds^1}\left[\frac{2}{s-5}\right]$

$2e^{5t}$

$L\{2e^{5t}\} = 2\left\{\frac{1}{s-5}\right\}$

SOLUTION:

STEP 1: $f(t) =$ [ ] , $n =$ [ ]

STEP 2: [ ]

$$\therefore F(s) = \frac{2}{s-5}$$

STEP 3: [ ]

$$= (-1)\frac{d}{ds}[2(s-5)^{-1}]$$

$$= (-1)\,[(-1)2(s-5)^{-2}(1)]$$

$$= 2(s-5)^{-2}$$

$$= \frac{2}{(s-5)^2}$$