Advanced Engineering Mathematics, by Erwin Kreyszig 10th. Ed.

**Problem Set 6.2**

No. 1



Set ℒ

ℒ 

Insert  



 ℒ -1

No. 2



Set ℒ

ℒ 

Insert  



 ℒ -1

No. 3











 ℒ -1

No. 4



Set ℒ

ℒ 

Insert 



 ℒ -1

No. 5



Set ℒ

ℒ 

Insert 

 

ℒ -1

No. 6



Let ℒ

ℒℒ



Insert the initial values  into the above equation.



ℒ－1

No. 7





將代入上式







=ℒ -1

No. 8



Set ℒ

ℒ 

Insert 





ℒ -1

No. 9



Set ℒ

ℒ 

Insert 







ℒ -1

No. 10



Set ℒ

ℒ 

Insert  



ℒ -1

No. 11



Set ℒ

ℒ 

Insert 













ℒ -1

No. 12



Set 

Let ℒ, ℒ



Substituteinto the above equation

 



ℒ－1

Restore 



No.13



Set 

Let ℒ, ℒ

 



ℒ－1 And  

No. 14



Set  



















Restore 





No.15



Set 

Let ℒ, ℒ













No. 16

, 

, 



ℒℒℒℒℒ

On the other hand ℒℒℒ

 ℒℒ

ℒ

No. 17

First Shift Theorem ℒ

Or set ℒ 

Use (1)ℒ

And ℒ

 

No. 18



Set ℒ

Use (1) ℒ

And ℒ

 

Remark:



ℒ

ℒ

No. 19

,求ℒ



 (1)

Set ℒ

ℒ

And from (1) ℒℒ

 



No. 20

 求ℒ

Use no.19 ℒ



ℒ= ℒ





No. 21



ℒℒℒℒ

另解



ℒ (1)

Set   ℒ

ℒ

And from (1)  

No. 22

(a), 

, 



ℒℒℒℒ

On the other hand ℒℒℒ

 ℒℒ

ℒ

(b)

ℒℒ



(c)

Use Ex. 1ℒ

ℒ

(d)

ℒℒ



(e)





 (1)

Set ℒ

ℒ

And from (1) ℒℒ

 



Remark: use 10 on Table 6.1 ℒ

(f)





 (1)

Set ℒ

ℒ

And from (1) ℒℒ

 



Remark: use 9 on Table 6.1 ℒ

No. 23



 And ℒ－1 

Then ℒ－1

另解 

ℒ－1

No. 24



And ℒ－1 

Then ℒ－1

Futhermore ℒ－1



另解 ℒ－1

No. 25



And ℒ－1 

Then ℒ－1

No. 26



And

ℒ－1

Then ℒ－1

ℒ－1



另解



ℒ-1

No. 27



And

ℒ－1

Then ℒ－1



ℒ－1





另解



ℒ-1

No. 28



And

ℒ－1

Then ℒ－1



ℒ－1





另解



ℒ-1

No. 29



And ℒ－1

Then ℒ－1

ℒ－1



另解



ℒ-1

No. 30

(b) ℒ









ℒℒ

Remark: set

(c) if  and 0 if 



 

ℒ

if and if

ℒ

 

On the other hand, using (b) and   

ℒ



 

Sinceand are identical, it is verified.