

ASEN 3113: Thermodynamics and Heat Transfer, Fall 2017

Instructors:

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345%+,!161789:710"8!5;!1617210760:1!
()\$*+!<5=>,>! ? +@,! " "7" :A!B%@!B&>5!BCB\$&BD&+!;\$E4F!B)F+;!
&+*F=;>B%@!DG!BHH5\$%F I +%F!!

- I B\$&,&\$J K&B>HL*5&5;B@5L+@=!MH;+)+;+@N!

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O>L! / ;=@G!P*4QB;FR!
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345%+,16172107

Important Notes

"L! / +B I Q5; Y!B% @!&BD!H+;)5; I B% *+!Q\$&&!D+!5DFB\$%+@!); 5 I !H++; !+CB&=BF\$5% !B% @!); 5 I !F4+!
)B* =&FG!B% @! / S !5D>+; CBF\$5% !5) !F4+!>F=@+%Fi>HB; F\$* \$HBF\$5% !5% !*&B>>+>!B% @!&BDL!!

! : L! / 4+!>*4+@= &+@!&BD5; BF5; G!45=;>!Q\$&&!D+! =>+@!)5; !D5F4!+JH+; \$ I +%FB&!B% @!@+>\$E% !&BD!
H; 5` *F>L" / 4+>+!&BD!45=;>!>45=&@!D+! =>+@!)5; !*5=;>+!Q5; Y!+C+% !Q4+% !%5!)5; I B&!
>=H+; C\$>\$5% !5>!H; +>+%FL!

!1L! SFF+% @B% *+!F5!B&&!&+*F=; +>!B% @!&BD5; BF5; G!Q5; Y>45H>!5>!+JH+*F+@L!!

!8L! - JH+*F!%+Q! I BF+; \$B&!F5!D+!H; +>+%F+@!\$!D5F4!F4+!j&+*F=; +>j!B% @!F4+!j&BD5; BF5; G!45=;>L!!

OL! ? 4G!4BC+!; +B@\$%E!B>>\$E% I +%F>A!45 I +Q5; YA!&BD!+J+; *\$>+>A!+JB I >A!B% @!@+>\$E% !H; 5` *F>k!!!

c +B@\$%E!B>>\$E% I +%F>!B; +!F5!D+!*5 I H&+F+@!D+)5; +!F4+!&+*F=; +]@ \$>* =>>\$5%L! / 4+!
&+*F=; +]@ \$>* =>>\$5%>!>45=&@!4+&H!F5! *&B; \$)G!B% @!>=HH&+ I +%F!Q4BF!G5=!4BC+!; +B@L!!

UL!S&&!45 I +Q5;Y! I =>F!D+!5%!ULOJ" "7\$%*4!*&+B%!HBH+;L!<5 I +Q5;Y!Q\$&&!D+!F=;%+@\$%! +&+*F;5%\$*B&&G!>=\$E!>*B%%\$E!BHH!5;!>*B%+;L! / S1 . S!Q\$&&!+JH&B\$%!F4\$>!\$%!@+FBS&&L!!

9L!S&QBQ!>=>D I \$F!Q5;Y!\$%!B!H;5)+>>\$5%B&&!5; I L! [+BF%+>>A!*&B;\$FGA!B%@!*5 I H&+F+%>>!*5=%FL!!

"6L! 'BF+!B>>\$E% I +%F>!Q\$&&!%5F!D+!B**+HF+@L!<5Q+C+;A!\$)!G5=!Q\$&&!%5F!D+!BFF+%@\$%E!*&B>>! G5=! I BG!F=;%7\$%!G5=;!45 I +Q5;Y!+B;&GA!B%@\$%*&=@+!B%!+JH&B%BF\$5%L!b)!G5=!Y%5Q!\$%! B@CB%*+!F4BF!G5=! I =>F! I \$>>B!45 I +Q5;Y!@=+!@BF+!5;!&BDA!>+%@!>+7 I B\$&!5;!C5\$*+! I B\$&!F5! I BY+!B;;B%E+ I +%F>L!T+!5%!F\$ I +n!!

!"L! . 5&&BD5;BF\$5%!\$>!H+; I \$FF+@!5%!45 I +Q5;YL! / 4\$>! I +B%>!G5=! I BG!@\$%*=>>!F4+! I +B%>!B%@! I +F45@>!5;!>5&C\$%E!H;5D&+ I >!+C+%!*5 I HB;+!B%>Q+;>A!D=F!G5=!B;+!%5F!);++!F5!*5HG! >5 I +5%+^!B>>\$E% I +%FL! / 4+!Q5;Y!F4BF!G5=!F=;%!\$%! I =>F!D+!G5=;!5Q%77*5HG\$%E!\$>!%5F! B&&5Q+@!)5;!B%G!B>>\$E% I +%F>L! . 5&&BD5;BF\$5%!5%!\=\$RR+>B%@!+JB I >A!5;!=>\$%E!B%5F4+;! >F=@+%F^!Q5;Y!5;!B&&5Q\$%E!B%5F4+;!>F=@+%F!F5!>+!G5=;!Q5;Y!\$>!B*B@+ I \$*! I \$>*5%=@*FL!!

" :L! / 4\$>!*&B>>!\$>!%5F!E;B@+@!5%!B!*=;C+a!F4+;+!B;+!BD>5&=F+!+JH+*FBF\$5%>!5)!H+;5; I B%*+L! <5Q+C+;A!Q+!;>+;C+!F4+!;\$E4F!F5!%5; I B&\$R+!F4+!*&B>>!E;B@+>!DB>+@!5%!F4+!4\$E4+>F! H+;5; I B%*+!\$%!F4+!*&B>>L! / 4+!%5; I B&\$RBF\$5%!H;5*+>>!Q\$&&!&5Q+;!%5!E;B@+L!!

b%!5;@+;!F5!*5%F\$%+!5%!SP- [!*5;+!*5=;>+>A!B! I \$%\$ I = I !E;B@+!5)! . !\$>!;+ \=\$;+@L!

Other Important Notes

"N!b)!G5=! \=B&\$)G!)5;!B**5 I I 5@BF\$5%>!D+*B=>+!5)!B! @\$>BD\$&\$FGA!H&+B>+!>=>D I \$F! I +!B!&+FF+;!);5 I ! W\$>BD\$&\$FG!P+;C\$*+>! \$%! B! F\$ I +&G! I B%+;!M)5;+JB I !B**5 I I 5@BF\$5%>!H;5C\$@+! G5=;! &+FF+;!BF!&+B>F!5%+!Q+Y!H;\$5;!F5!F4+!+JB I N!>5!F4BF!G5=;!%++@>!*B%!D+!B@+;+>>+@L!W\$>BD\$&\$FG! P+;C\$*+>! @+F+; I \$%+>! B**5 I I 5@BF\$5%>! DB>+@! 5%! @5*= I +%F+@! @\$>BD\$&\$F\$+>L! . 5%FB*F! W\$>BD\$&\$FG!P+;C\$*+>!BF!161789 : 7UV2" !5;!DG!+7 I B\$&!BF!@>(\$%)5 K *5&5;B@5L+@=L!b)!G5=!4BC+!B! F+ I H5;B;G! I +@\$*B&! *5%@\$F\$5%! 5;! \$%`=;Ga! >+! / + I H5;B;G! b%`=;,\$+>! E=\$@+&\$%+>! =%@+;! F4+! o=\$*Y! ' \$%Y>!BF!F4+!W\$>BD\$&\$FG!P+;C\$*+>!Q+D>\$F+L!

! :N! -C+;G! +))5;F! Q\$&&! D+! I B@+! F5! B**5 I I 5@BF+! >F=@+%F>! Q45A! D+*B=>+! 5)! ;+&\$E\$5=>! 5D&\$EBF\$5%>A! 4BC+! *5%&)

