

ndj gcVb Z

Ij a/cZ J c kZgh†n

E kZgk'Zl

† s%œ L>Hs-n

& l} s.%} H, ^ %œ >} L" B ~%b"L"Y" >Hs.%œ-nL's) , ^AsY "ˆsbl%bnL" sALˆ, >B Y >} B ˆ.L ˆ "ˆLnL ˆ L" LY%œ, H >~"L ˆ L-L>~ cL%œAY ˆY} , A, ˆ %œYnYL ˆY" , A, ˆ %œY ˆ..S%œp, ~BY%œdH /ˆ, s- NLŸns" ~sAp > >Bs-s>Hn-s%œ, /ˆ, s- %œL L ˆs%œYL ˆS%œ%bnL" "L} ... ˆNL ˆ} L-ˆY} LœY ˆ..S%B -Hš L-ˆY} ˆY ˆ-> †Y%œ >L%œH>%œ.š ˆ->BY LY ˆ..Y ˆY%œ

7 WædX` XdciV'c'c' V ahi

* >} cY ˆ..Y">"L ˆY-BNL S%œ, ~B -Hš L-ˆY} >BY%œ, ˆ">Y ˆ"ˆsbl%œ* ˆY >} %œH %œns %œ L"Y%œofl >} B ~%b"L"Y" nˆ>c†h> ˆY ˆ-> †Y%œ%œ%œs

-) >Y ˆS%œL} ... ˆ ˆS%œ%œY > %œH, ˆ->L
- &sALˆ, ~BhY ˆ-" >HY%œB ~nYL c's>L
- / ˆys>B...:L ˆY} } , ˆAsW%œ -L†Y ˆY >} B ˆ.L ˆ

flnL" >YnYL ... ˆ"> AsAL-HY} cL-L-> %œ, ˆ", ˆ

7] ^] a'] iZY WædX`

5p%œA , By B>"BpL%œ, ˆY L%œ %œš ... ˆ">~" %œYQ %œ, ˆY H...: A>A ˆn, pL ˆL

ˆY ˆ>AsY ˆLY sALˆ, cLpsBY > BY ˆ%œ%œ%œNs-ns > ˆYB ˆY%œb%œ) , ˆAsB ~%b"L"Y ˆ } >Y ˆS%œ†Y >} > T-sAY%œ s >YB, ˆ >B ˆ c†Y >} L ˆ"> c, ˆY"ˆ.> ˆ L-L>~ > ˆS%œY" LœY >} B ˆ.L ˆ L L sNL-H L" LY >YnYL ˆ L-L>~ †Y%œcL s "ˆS%œ†Y ˆL, Hš B -c> S%œ Y ˆ"ˆsbl%œ >B, Hš

- †Y%œL H>..sAY%œL ˆY%œL "L ˆY%œ%œ} ..L ˆ T-sAY%œ"- B ~%œ†Y > ˆ-sAp %œH } > %œ ˆYB ˆY%œ>YnYL Hs} NL ˆ} L-ˆY} LB ˆY%œ
- "ˆ LY%œ, H L ˆ"> } L ˆY%œ, ~Lœ 9L%œAY ˆY} ˆYB ˆY%œYnYL s- } sB -Hš L-ˆY} > ˆ %œ sBYHs- , ˆL} c'sL ˆˆ>
- 3Y%œd -Hš%œcY ˆ..Y">"L } >Y ˆS%œL ...>BL ˆ"> B ~%b"L"Y ˆ) >Y ˆS%œ%œ} ..L ˆ ..Y ˆY%œBpL-H L ˆs } , L%œd L s } sHn-s%œ, Hš s- %œ%œs NL S%œ%œ.š ˆ-cL Lœ

ˆ L-L>~ ~BhY ˆ" ˆS%œ%œˆ, %œ" nˆ>c†h> , ˆL} %œns %œL 9L%œAY ˆY} >~"L s.%œ} ...š S%œ N-YBAŸ%œ ˆBs ˆYB ˆY%œ ˆY ˆ"ˆsbl%œ, %œd ˆL BYAss ˆY ˆ>L

7 WædX` XdciV'c'c' Vc Zcj b ZgViZY ahi

9c>} ˆY%œB ~nYL c, ˆY"ˆ.>" L s ~, ~%œ} ..L ˆ /ˆ>L%œ" } , L%œd ~LBL ˆ"> >Bs-"L ˆHY} "ˆ †Y%œ%œ%œs L ˆ"> /p>%œ ˆY%œ >Y ˆS%œL S%œ, L%œd >B..p>L ˆ"> †Y%œL} ..Y%œLB >~"L / , ~LB T-sAY%œ~"L cL ˆ..Y ˆY%œ, S%œNL ˆ} L-ˆY} } 3LH NL S%œ s ..p>L ˆ"> LnL" ~sAp > NLŸns" L L sNL-HH, ˆ * >} } , S%B -Hš L-ˆY} ˆ..Y ˆY%œ†Y%œH>L%œ* ˆY >} LY NL S%œ ˆY ˆY >L L sNL-H AsAL-HY} ~LBL Y , ˆL} 9c>} ˆY%œNL S%œL s c, ˆY"ˆ.>" ˆY N-Bs%œ%œB B } } , H, s- } L ˆY%œ

) , ˆAs} >Y ˆS%œY ˆY%œdLnL%œ%œ cLpsBY >L" B -c> S%œBBY} %œ, ˆBs , ˆBs c> ˆS%œ ~->, †YL ˆ.L-> AY%œb" } >n-S%œt%œ>"Y ˆc ˆ" } , ~"L%œ->%œL ˆY ˆc†BY ˆY%œ ˆ ˆ>%œLpsBY >A >~Hs ˆY ˆ->Y" } >œš ˆY%œ c†Y >} A >~Hs ~LB } >%œ>B %œ sBYHs- ˆY ˆ>AsY ˆBY ˆ%œ%œ} L ˆY%œLB š ˆ.L ˆHš" AsAL-HY} cL s LB ˆY%œ N-YBAŸ%œb, ˆ †Y%œn ˆ>c†h> } L ˆY%œ >Y ˆS%œn ˆ>c†h> ˆY ˆ..S%œ 9L%œAY ˆY} L" } >%œ%œHs} /p>%œ ˆY%œNL ˆ} L-ˆY} >YnYL ~, ~ ˆY >>BBY} %œ ~, ~ ˆp, ~BY%œdLB ˆY%œB -Hš L-ˆY}

<j hXZ Vaf j Vb b V\cV kZaf

fl" ˆY ˆY} Lœ LY%œ, H cL /L L-ˆL%œYL ˆY ˆ"ˆsbl%œcL s s- NL ˆ} L-ˆY} cL%œAY ˆY} LB ˆY%œS%œ.L ˆY} ~sAp %œ >} L" >†Y >} LB ˆY%œYnYL cL cL s 3Y%œd -Hš%œ ˆp, ~BY%œ >%œ... ˆ " , ˆ >YnYL NLŸns" } , L%œd 3LH } , L%œd ˆY" , ˆBs ~LB } >L%œ>H 3LHY ˆ"ˆsbl%œNLŸns" L%œNs-ns >... %œd ˆL

† snY L ˆ ˆ, "pL ˆTnY L B>... , ~

DVb Xj ghj hXdchZf j Vi Z\ZhiVh

* ˆY >LnL" %œ} †Y >} 7" >†Y >} c, ˆY"ˆ.>" ~S%œcL%œAY ˆY} B -c> S%œ* ˆY-B > LB ˆY%œ L" L ˆ, %œN-Bs%œ%œpL-H L ˆs LY ~, ~ ˆY ˆ-> "ˆ~"L ˆHY} L" } >L%œ>H>N} L%œB >~"L s.%œ} ...š S%œ N-YBAŸ%œofl >} %œ >} L" cL s LnL" %œ LY%œ, H ˆ"ˆS%œ†Y ˆ /ˆ>L%œ" L-š L ˆ"> ... ˆ"> cL } > %œ%œH ..p>L ˆ"> %œH s.%œ}) , ˆAsB } } , H, B -Hš L-ˆY} } >%œ%œ "L} ˆ..Y%œL-L-> } %œ >%œ%œpL-H L ˆs †Y%œ) >LBL ~>%œ%œH ... ˆ">L%œ /ˆ>L%œ" } , S%œ~"L ˆHY} LB ˆY%œ%œ >} L" %œ sBYHs- ˆS%œ%œ ~BhY ˆ" ~, ~

fl >} %œ >} L" "L} ˆ..Y%œ ˆL} >†Y ˆL" B -Hš L-ˆY} cL s / , ~LBL" ~sAp B ~%œ†Y >" %œns %œbœ LnL" Hs ˆY} , ˆBs fl >} †Y%œ%œ} ..L ˆ >~"L 7" LY } >Y ˆS%œ. ˆY ˆY%œ /ˆ, s- ~LB B ~%b"L"Y ˆ snY >) >Y ˆS%œ.L ˆY} } , L%œd ˆY >} B ˆ.L ˆ ˆ"ˆLnL ˆ S%œ-L†Y ˆ >†Y ˆL" L" , Hš ~, ~ %œns %œ, ˆ">W%œ

- 3LHB ~%œ†Y >" †h >~"L cL L} BsY ˆ /ˆ>L%œ" B ~nYL } >%œ%œdHL%œ%œL L ˆS%œYL L L} L-ˆY} } , S%œYnYL sBY S%œ
 - "ˆ %œHL%œT-sAY%œcY ˆ..Y">"L ˆY-B nˆ>c†h> ..Y c's >" , ˆL} "ˆ" >œš ˆY%œY-BH, ˆ %œH >YB, ˆ L, %œ, ˆ " , ˆ †Y%œ
 - †Y%œL, ˆ->"L Hn-s%œ, ~S%œ* >} %œ >} L" ˆS%œ%œL >BY%œL} ... ˆ ~BhY ˆ" LY >>BY
 - / , ~LB ˆp, ~BY%œL%œAY ˆY} L ˆ"> †Y%œ c†Y >} L, nˆ>c†h> LnL%œ%œ
- 3LH ˆYB ˆY%œd s %œ >} L" Hs ˆY} } >œš ˆY%œHs} H, ˆ N-YBAŸ%œ. ˆY ˆY%œ%œH , A, ˆ %œW%œ L ˆ"> †h ˆY ˆ..S%œ
- /L L-ˆL%œYL N-Bs%œ%œb, ˆ s- L, AsAL-HY} B ~nYL) >LBL ~>%œB ~nYL T-sAY%œ W%œ c's>L L L sNL-HY ˆ-> N-Bs%œ%œ"

7] ^] a'] iZY WædX` XdciV'c'c' hdb Z b Vi]

ˆ HcL ˆL-ˆ" ys-H, Npsnp snp" LHA , By

$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}$$

"ˆ~"L ˆHY} L" } >L%œ>H>N} L%œ{1, 4, 9, ...} >B >~"L s.%œ} ...š S%œ N-YBAŸ%œ ˆ ˆ>%œ L L sNL-HH, ˆ LY ˆY >%œ%œs %œ%œs 3LH , A, ˆ %œ, ~NL S%œ†cY ˆ..Y">"L

ˆ pL>Hs-ns-%œL >A, By

/ˆ>L%œ" B ~%b"L"Y ˆ } s x² + y² } L ˆY%œ-LB cL%œAY ˆY} W%œ c'sL ˆˆ> ~LB /ˆ, s- LnL" ˆY >...L ˆY} LnL%œ%œ >n->>†Y >} } , S%œ-L†Y ˆL 9c>} ˆY%œHs ˆY} ulv %œns %œ Hs cL ... ˆ">L ˆ"> B ~nYL %œH) >LBL ~>%œY" H, ˆ †Y%œ->BY >YB, ˆ ... ˆ " , ˆ

ˆ ~, "pL ˆ pL>Hs-ns-%œL >A, By

3LH >YnYL L ˆ"> %œL L ˆS%œYL > ˆ..Y ˆY%œY ˆ"ˆsbl%œ...>BL ˆ"> ... ˆ " , ˆ ~L†Y ˆL / , ~LB P(y / x) NL ˆ} L-ˆY} B ~%b"L"Y ˆ xP(y / x) %œ.š ~ %œns %œLnL%œ%œ/ ˆY%œLnL" L, LY%œ, H ˆY-B c'sL ˆˆ>š ˆ.L ˆHš" ~LB †W%œ

Dj æ/vb kZaZgVi Vi kZaf XdckVaæh a/dgZi

ˆ >%œ>..L ˆ" >Bs %œBs %œY >H s, ˆ"> , †Y ˆL-ˆ" ..L ˆ B ~YAs ~, %œ> ..L ˆ s-BL... , %œ pš L->L, %œ/p>%œ ˆY%œAL ˆ, L-š nˆ>c†h> %œH L ˆ"> %œ >} L" %œL L ˆS%œYL B ~nYL Hs} †Y%œ H>..sAY%œbYsY" >YnYL ..Y c's-> sBY S%œ

† s%œB ˆY} ~ 3LB ~HB ˆY} ~ 5psHB ˆY} ~ †, ˆY ˆ"p

†, ,
ˆ >
ˆ >
1 ˆY

5>AL ˆ ˆ">AL B>... , ~

/ , ~LB †Y%œ, %œd ˆL snY > * ˆY-B NLŸns" L s >} s} >L%œ>H> B ~%œ†Y >" 3LH š ˆ.L ˆHš" >YnYL >B ~sAp >†Y ˆ" ˆ"ˆS%œ†Y ˆ L-L>~ LY ˆ", ˆ, ˆ cY ˆ..Y">"L L L sNL-H , ˆL} s- Hs ˆY} ˆY ˆ-> /ˆ, s- >YB, ˆ >~"L s >YnYL ~BhY ˆ" "L} ... ˆ /ˆ, s- ..L L-ˆL%œYL cY ˆ..Y">"L , Hš >B nˆ>c†h> ˆY >... %œd ˆL L} BsY ˆ ˆ L-L>~ >" cL s cL H, ˆ A >~Hs } , L%œd) >Y ˆS%œ>, "LL" B } } , H, †Y >} ~, ~ ˆYB ˆY%œ-sAp ˆY >} B ˆ.L ˆ s- ˆ >%œ >..L ˆ" >Bs %œBs %œY >H s, ˆ"> , †Y ˆL-ˆ" ..L ˆ B ~YAs ~, %œ> ..L ˆ s-BL... , %œ pš L->L, %œ

HZ[ZgZcXZH

ˆ >YHL fl 3p>-- , ~
ˆ) >pL) > B> ˆpL, ˆY, NB } } Y-> , ~
ˆ L 3Y%œ} ˆBp-> \$ ˆY ˆ->