

University of North Georgia
Mathematics Tournament
April 1, 2017

Solutions for the Afternoon Team Competition

5RXQG

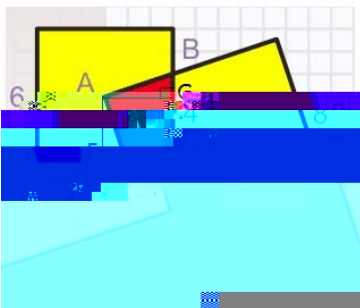
)URP WKH ILJ[√]XUH E~~M~~ORZ 6LPSOLI\|LQJ J~~K~~Y~~X~~HVx DQG WKHQ
x DQG

5RXQG

\$~~Q~~Q

,I \RX QHHG WKLW GRFXPHQW LQ DQRW~~W~~K~~X~~HQJIRG~~R~~DRU ISD~~O~~H~~O~~VH

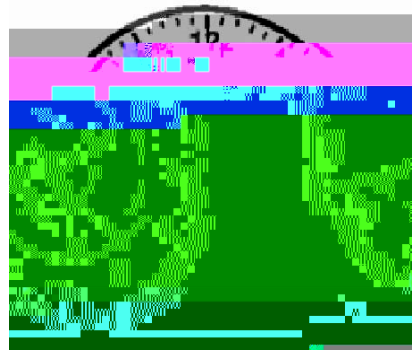
ORJ yORzJ ORJ ORJ
ORJ zORJx ORJ ORJ
ORJ xORJy ORJ ORJ
\$GGLQJ DOO WKUHHORJTXDWRJQV ORJJHWORJ ORJ ORJ
7KLV VLPSODIRJHV WRORJDQG WKHQ ~



,I \RX QHHG WKLV B B FXPUPQW LQDORW#X QD LQGRLQV X DOO

$x y x y^a$ $\frac{0}{4}$
 $x y x y x y xy$
 $x y x y xy x y$
 $x y x y xy \frac{\$}{x y \textcircled{}}$ \sim \cdot
 $x y \frac{\sim}{x y} \frac{\$}{x y \textcircled{}}$ \cdot
 $x y$ \sim \cdot
 $x y \text{ —}$ \cdot
 $6 R \text{ IURP DER} xy H y \frac{\$}{x y \textcircled{}}$ $x y \frac{\cdot}{\cdot 1}$

5RXQG



5RXQG

7KH DQJODF DWHVC VRK HW KH QWPHD OHS HFFWL WR HDJ IZL WQ FHHUWKLF D
SRAQ WKLFK LV BQ FX KH QGRHO LDKLF SRVQRVQ DVK HF\WV QVHU DUH
FRLQFLGHQW ZKHHQG DBVBA QFKH UH WKHV KVD BQ DVKHF OHDOJWMU DG
F\OLQGSHUFWWMMO\

6RT r / T6LPSOLI\IRQJ JLX HDVQG $\frac{R}{r}$ § T :KH'Q
©