

A Book Signing

Graeme Base was signing books at Barnes and Noble! He is such a wonderful artist and author that the wait was hours long. He was signing copies of Animalia, The Sign of the Seahorse, and The Eleventh Hour. Each person could only buy one copy of each title but could buy more than one title. A local news station filmed the signing for an hour. During that time, they made the following observations:

- * Twenty-nine copies of Animalia were sold.
- * The nineteen people who bought The Eleventh Hour probably love a good mystery!
- * The twenty people who bought The Sign of the Seahorse will love this tale of greed and high adventure!
- * Seven people thought this was a once in a lifetime opportunity and bought all three!
- * Animalia was very popular, so it wasn't surprising that fourteen people bought Animalia but not The Eleventh Hour or The Sign of the Seahorse.
- * Three people bought Animalia and The Eleventh Hour but not The Sign of the Seahorse.
- * Seventeen people bought more than one book.

How many people bought a book or books during that hour? _____

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clue 1: $A+B+D+E=29$

clue 2: $D+E+F+G=19$

clue 3: $B+C+E+F=20$

clue 4: $E=7$

clue 5: $A=14$

clue 6: $D=3$

*(from clue 1)

$$14+B+3+7=29$$

so $B=5$

clue 7: $B+D+E+F=17$; $5+3+7+F=17$

so $F=2$

*(from clue 2) $3+7+2+G=19$

so $G=7$

*(from clue 3) $5+C+7+2=20$

so $C=6$

Since the question only asks for the number of people who bought books, and only those three books were available, $H=0$.

$A=$ 14

$B=$ 5

$C=$ 6

$D=$ 3

$E=$ 7

$F=$ 2

$G=$ 7

$H=$ 0

$$A+B+C+D+E+F+G+H=44$$

Forty-four people bought books during that hour.