UNIT 9 EXERCISES 6-10

BIRTHDAYS

2015A

6. **Answer (B):** Let p be Pete's present age, and let c be Claire's age. Then $p-2=3(c-2)$ and $p-4=4(c-4)$. Solving these equations gives $p=20$ and $c=8$. Thus Pete is 12 years older than Claire, so the ratio of their ages will be $2:1$ when Claire is 12 years old. That will occur $12-8=4$ years from now.

2006A 7. **(B)** Let Danielle be x years old. Sally is 40% younger, so she is $0.6x$ years old. Mary is 20% older than Sally, so Mary is $1.2(0.6x) = 0.72x$ years old. The sum of their ages is $23.2 = x + 0.6x + 0.72x = 2.32x$ years, so $x = 10$. Therefore Mary's age is $0.72x = 7.2$ years, and she will be 8 on her next birthday.

1999 8. **(D)** Let w and $2w$ denote the ages of Walter and his grandmother, respectively, at the end of 1994. Then their respective years of birth are $1994 - w$ and $1994 - 2w$. Hence $(1994 - w) + (1994 - 2w) = 3838$, and it follows that $w = 50$ and Walter's age at the end of 1999 will be 55.

2007B 8. **Answer (D):** Tom's age N years ago was $T - N$. The sum of his three children's ages at that time was $T - 3N$. Therefore $T - N = 2(T - 3N)$, so $5N = T$ and $T/N = 5$. The conditions of the problem can be met, for example, if Tom's age is 30 and the ages of his children are 9, 10, and 11. In that case $T = 30$ and $N = 6$.