14

CALCULATION

2003A

16. What is the units digit of 13^{2003}?

(A) 1 **(B)** 3 **(C)** 7 **(D)** 8 **(E)** 9

2011A

16. Which of the following is equal to $\sqrt{9-6\sqrt{2}}+\sqrt{9+6\sqrt{2}}$?

(A) $3\sqrt{2}$ **(B)** $2\sqrt{6}$ **(C)** $\frac{7\sqrt{2}}{2}$ **(D)** $3\sqrt{3}$ **(E)** 6

2013B

20. The number 2013 is expressed in the form

$$2013=\frac{a_1!a_2!\cdots a_m!}{b_1!b_2!\cdots b_n!},$$

where $a_1 \geq a_2 \geq \cdots \geq a_m$ and $b_1 \geq b_2 \geq \cdots \geq b_n$ are positive integers and a_1+b_1 is as small as possible. What is $|a_1-b_1|$?

(A) 1 **(B)** 2 **(C)** 3 **(D)** 4 **(E)** 5

2014B

17. What is the greatest power of 2 that is a factor of $10^{1002} - 4^{501}$?

(A) 2^{1002} (B) 2^{1003} (C) 2^{1004} (D) 2^{1005} (E) 2^{1006}