

**2017 Q5**

5. What is the value of the expression  $\frac{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8}{1 + 2 + 3 + 4 + 5 + 6 + 7 + 8}$ ?
- (A) 1020      (B) 1120      (C) 1220      (D) 2240      (E) 3360

5. **Answer (B):** The sum  $1 + 2 + 3 + \cdots + 8 = 36$ , so the desired quotient is

$$\frac{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8}{36} = 4 \cdot 5 \cdot 7 \cdot 8 = 1120.$$

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**2016 Q8**

8. Find the value of the expression

$$100 - 98 + 96 - 94 + 92 - 90 + \cdots + 8 - 6 + 4 - 2.$$

- (A) 20      (B) 40      (C) 50      (D) 80      (E) 100

8. **Answer (C) :**

Evaluate the expression by grouping as follows:

$$(100 - 98) + (96 - 94) + \cdots + (8 - 6) + (4 - 2) = 2 + 2 + \cdots + 2 + 2 = 2 \cdot 25 = 50.$$

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**1985 Q9**

9. The product of the 9 factors  $(1 - \frac{1}{2})(1 - \frac{1}{3})(1 - \frac{1}{4}) \cdots (1 - \frac{1}{10}) =$

- A)  $\frac{1}{10}$       B)  $\frac{1}{9}$       C)  $\frac{1}{2}$       D)  $\frac{10}{11}$       E)  $\frac{11}{2}$

9. (A) The desired product equals  $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \dots \times \frac{8}{9} \times \frac{9}{10} = \frac{1}{10}$   
Notice that since  $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$ , the product is less than  $\frac{1}{3}$  so  
(C), (D) and (E) are easily eliminated.