

Quantitative Ability (Part 5 of 9)

Directions: Answer these questions on the basis of the information given below:

Cities A and B are in different time zones. A is located 3000 km east of B. The table below describes the schedule of an airline operating non-stop flights between A and B. All the times indicated are local and on the same day.

Departure	Departure	Arrival	Arrival
City	Time	City	Time
B	8: 00 AM	A	3: 00 PM
A	4: 00 PM	B	8: 00 PM

Assume that planes cruise at the same speed in both directions. However, the effective speed is influenced by a steady wind blowing from east to west at 50 km per hour.

1. What is the time difference between A and B?
 - a. 1 hour
 - b. 1 hour and 30 minutes
 - c. 2 hours
 - d. 2 hours and 30 minutes
 - e. Cannot be determined

Answer: a

2. What is the plane's cruising speed in km per hour?
 - a. 500
 - b. 700
 - c. 550
 - d. 600

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e. Cannot be determined.

Answer: c

3. Consider four digit numbers for which the first two digits are equal and the last two digits are also equal. How many such numbers are perfect squares?

- a. 1
- b. 3
- c. 2
- d. 4
- e. 0

Answer: a

4. In a tournament, there are n teams T_1, T_2, \dots, T_n , with $n > 5$. Each team consists of k players, $k > 3$. The following pairs of teams have one player in common: T_1 & T_2 , T_2 & T_3 , ... T_{n-1} & T_n , and T_n & T_1 . No other pair of teams has any player in common. How many players are participating in the tournament, considering all the n teams together?

- a. $(n - 1)(k - 1)$
- b. $n(k - 1)$
- c. $k(n - 1)$
- d. $n(k - 2)$
- e. $k(n - 2)$

Directions: Answer these questions on the basis of the information given below:

Let $a_1 = p$ and $b_1 = q$, where p and q are positive quantities. Define $a_n = pb_{n-1}$, $b_n = qa_{n-1}$, for even $n > 1$, and $a_n = pa_{n-1}$, $b_n = qb_{n-1}$, for odd $n > 1$.

Answer: b

5. Which of the following best describes $a_n + b_n$ for even n ?

- a. $q(pq)^{1/2n-1}(p+q)^{1/2n}$
- b. $q(pq)^{1/2n-1}(p+q)$
- c. $qp^{1/2n-1}(p+q)$
- d. $q^{1/2n}(p+q)$
- e. $q^{1/2n}(p+q)^{1/2n}$

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Answer: b

6. If $p = \frac{1}{3}$ and $q = \frac{2}{3}$ then what is the smallest odd n such that $an + bn < 0.01$?

a. 15

b. 7

c. 13

d. 11

e. 9

Answer: e