

SOME SAMPLE PROBLEMS

1. Which of the following numbers is the least?

- (A) $\frac{3}{5}$ (B) $\frac{29}{50}$ (C) $\frac{13}{20}$ (D) $\frac{7}{15}$ (E) $\frac{17}{30}$

2. Which of these numbers is equal to 3?

- (A) $\pi - 0.14$
(B) $\pi - \frac{1}{7}$
(C) The number of digits in 11^3
(D) The number of pockets on a snooker table.
(E) The diameter (in metres) of a circle of circumference 3π metres.

3. For how many whole numbers n is $n^2 = 4n - 4$?

- (A) None (B) Infinitely many (C) Two (D) Four (E) One

4. In order to travel from Mathsville to Numberstown, one must first drive 3 km north, then drive 4 km east, then drive 6 km south. Crows always fly in a straight line, at 20 km per hour. How long would it take a crow to get from Mathsville to Numberstown?

- (A) 39 minutes (B) 20 minutes (C) 15 minutes (D) 1 hour (E) None of these

5. Buses depart from Galway for Dublin every hour on the half hour. Buses depart from Dublin for Galway every hour on the hour. All journeys take exactly three hours and all buses travel by the same route. If you leave Galway on the 2.30 bus, how many buses en route from Dublin can you expect to meet on your journey?

- (A) 3 (B) 4 (C) 6 (D) 5 (E) None of these

6. How many whole numbers in the range 1 to 100 (inclusive) are multiples neither of 2 nor of 3?

- (A) 50 (B) 67 (C) 33 (D) 34 (E) None of these

7. If n is a positive whole number, which of the following must be a factor of the number $n^2(n+1)^2$?

- (A) 3 (B) 4 (C) 8 (D) 6 (E) None of these.

8. In an art class, each student is given a white cube and told to paint three of its faces red. How many differently coloured cubes can be produced?

- (A) 20 (B) 120 (C) 1 (D) 2 (E) None of these

9. Alice, Aoife and Amy are sisters. One of them always tells the truth, one of them always lies, and one of them may do either.

- On being asked if Alice ever tells the truth, Aoife and Amy both reply “No”.
- On being asked if Aoife ever tells the truth, Alice replies “No” and Amy replies “Yes”.
- On being asked if Amy ever tells the truth, Alice and Aoife both reply “No”.

Which of the following statements is false?

- (A) Aoife sometimes lies and sometimes tells the truth.
- (B) Alice lies (at least sometimes).
- (C) It is impossible to determine from the given information which of the three is the truth teller.
- (D) Amy tells the truth (at least sometimes).
- (E) Aoife lies (at least sometimes).

Answers on next page

Answers :

1. D

2. E

3. E

4. C

5. C

6. C

7. B

8. D

9. C