MATHEMATICS

1. If E is any subset of a metric space M then ________.

(A) $\overline{E} \subset E$

(B) $E \subset \overline{E}$

(C) $E \supset \overline{E}$

(D) $\overline{E} \supset E$

2. If A and ϕ are both open and closed in metric space $\langle A, \rho \rangle$ then A is said to be ________.

(A) complete

(B) compact

(C) connected

(D) closed

3. If a subset A of the metric space $\langle M, \rho \rangle$ is totally bounded then A is ________.

(A) unbounded

(B) bounded

(C) continuous

(D) closed

4. Metric space M is totally bounded if it has ________ of sets.

(A) finite number

(B) infinite number

(C) countably infinite

(D) None of the above

5. The union of an infinite number of closed sets is ________.

(A) always open

(B) always closed

(C) need not be closed

(D) None of the above

6. If A is a closed subset of a compact metric space $\langle M, \rho \rangle$ then A is also ________.

(A) complete

(B) connected

(C) compact

(D) closed and connected

7. If the metric space M has a Heine-Borel property then M is ________.

(A) complete

(B) connected

(C) compact

(D) closed and connected

8. X is a metric space. Y is a closed subset of X such that the distance between at most any two points in Y is 1. Then —

(A) Y is compact

(B) any continuous function from $Y \to R$ is bounded

(C) Y is not an open subset of X

(D) None of the above