

## Painting the room

A homeowner must paint all four walls of a bedroom using the following three paint colors—red, white, and tan. Each paint color is available in two types of finish—latex or satin. The homeowner adheres to the following restrictions when painting the room:

Each wall has exactly one color and one finish.

A wall cannot be the same color as any wall that touches it.

If there is more than one wall with a latex or a satin finish, then any wall that has that finish must touch at least one other wall with that finish.

There is no tan latex paint.

There is exactly one red wall.

1. Which one of the following could be an accurate description of the colors and types of finish for the walls starting with the north wall?
  - (A) North: red satin; West: white latex; South: white satin; East: tan satin.
  - (B) North: tan satin; West: red latex; South: tan satin; East: white satin.
  - (C) North: white latex; West: tan latex; South: red latex; East: tan satin.
  - (D) North: white satin; West: red latex; South: tan satin; East: white latex.
  - (E) North: red latex; West: white latex; South: red satin; East: tan satin.
2. If exactly one wall has a satin finish, then which one of the following must be true?
  - (A) The north wall is painted with red latex.
  - (B) The south wall is painted with white latex.
  - (C) Exactly three walls are painted white.
  - (D) Exactly one wall is painted tan.
  - (E) Exactly two walls are painted tan.
3. If there is exactly one wall with a latex finish and exactly one tan wall, then which one of the following must be true?
  - (A) There is exactly one red latex wall.
  - (B) There is at least one red satin wall.
  - (C) There is exactly one white satin wall.
  - (D) There are exactly two white satin walls.
  - (E) There is at least one white satin wall.
4. If there are two walls with a satin finish, then which one of the following must be true?
  - (A) Any red wall has a satin finish.
  - (B) Any white wall has a satin finish.
  - (C) There are two tan walls.
  - (D) There are two white walls.
  - (E) A red wall touches a tan wall.
5. Suppose that the restriction that there is exactly one red wall is suspended. If all other conditions remain unchanged, all of the following could be true EXCEPT:
  - (A) The walls are painted red and white, and there are two satin finishes and two latex finishes.
  - (B) The walls are painted red and white, and there are one satin finish and three latex finishes.
  - (C) The walls are painted red and tan, and there are three satin finishes and one latex finish.
  - (D) The walls are painted tan and white, and there are three satin finishes and one latex finish.
  - (E) The walls are painted tan and white, and there are two satin finishes and two latex finishes.