Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Unit 10 – Practice with Planes**

Monica

Geometry Period:\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:** Match each of the scenarios below the picture that best describes it.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Scenario** |  |  | **Picture** |
| \_\_\_ | If two planes are perpendicular to the same line, they are parallel. |  | #1 |  |
| \_\_\_ | Two planes are perpendicular to each other if and only if one plane contains a line perpendicular to the second plane. |  | #2 |  |
| \_\_\_ | If a line is perpendicular to a plane, then any line perpendicular to the given line at its point of intersection with the given plane is in the given plane. |  | #3 |  |
| \_\_\_ | If a plane intersects two parallel planes,  then the intersection is two parallel lines. |  | #4 |  |

**Answer the multiple choice Regents questions below.**

1) Point *A* is not contained in plane *B*. How many lines can be drawn through point *A* that will be perpendicular to plane *B*?

1. One 2) Two 3) Zero 4) Infinite

2) If two different lines are perpendicular to the same plane, they are

1. Collinear 2) coplanar 3) congruent 4) consecutive

3) Plane *R*  is perpendicular to line *k* and plane *D* is perpendicular to line *k*. Which statement is correct?

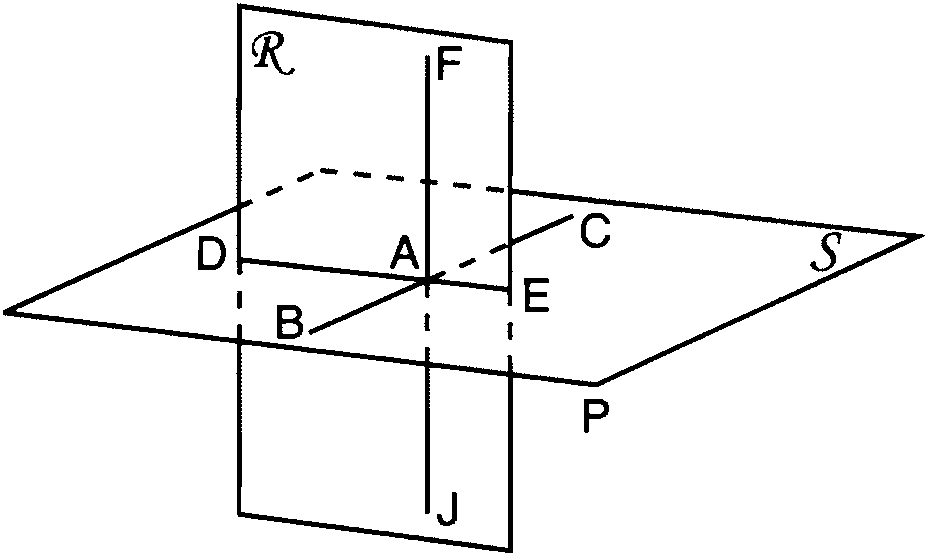
1) Plane *R* is perpendicular to plane *D.*

2) Plane *R* is parallel to plane *D.*

3) Plane *R* is perpendicular to plane *D.*

4) Plane *R* bisects plane *D.*

4) As shown in the diagram below, ** is contained in plane R, ** and  are contained in plane S*,* and *, ,* and  intersect at *A.* Which fact is *not* sufficient to show that planes R and S are perpendicular?



|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

5) As shown in the diagram below,  intersects planes *P*, *Q*, and *R*. If  is perpendicular to planes *P* and *R*, which statement must be true?

|  |  |
| --- | --- |
| 1) | Plane *P*  is perpendicular to plane *Q.* |
| 2) | Plane *R*  is perpendicular to plane *P.* |
| 3) | Plane *P*  is parallel to plane *Q.* |
| 4) | Plane *R*  is parallel to plane *P.* |



6) Line *k* is drawn so that it is perpendicular to two distinct planes, *P* and *R*. What must be true about planes *P* and *R*?

|  |  |
| --- | --- |
| 1) | Planes *P* and *R* are skew. |
| 2) | Planes *P* and *R* are parallel. |
| 3) | Planes *P* and *R* are perpendicular. |
| 4) | Plane *P* intersects plane *R* but is not perpendicular to plane *R*. |

7) If two distinct planes, *A* and *B*, are perpendicular to line *c*, then which statement is true?

|  |  |
| --- | --- |
| 1) | Planes *A* and *B* are parallel to each other*.* |
| 2) | Planes *A* and *B* are perpendicular to each other*.* |
| 3) | The intersection of planes *A* and *B* is a line parallel to line *c.* |
| 4) | The intersection of planes *A* and *B* is a line perpendicular to line *c.* |

8) A support beam between the floor and ceiling of a house forms a 90° angle with the floor. The builder wants to make sure that the floor and ceiling are parallel. Which angle should the support beam form with the ceiling?

1) 45° 2) 60° 3) 90° 4) 180°