

SELF-ASSESSMENT QUESTIONS

1. Two parallel lines are coplanar.

- a) True.
- b) False.

2. The magnitude of the vertical projection of a segment that is perpendicular to the horizontal plane coincides with the modulus of the segment.

- a) True.
- b) False.

3. If a given line is perpendicular to a plane, then:

- a) It is perpendicular to all the lines included in the plane.
- b) The line is perpendicular to the lines of intersection between the given plane with the parallel planes to the given line.
- c) The answers a) and b) are correct.
- d) All the previous answers are wrong.

4. How many points are enough to determine a plane?

- a) More than three.
- b) Three.
- c) Two.

5. How many planes satisfy these two conditions? To be perpendicular to a given plane, and to contain a given line.

- a) Only one plane.
- b) There is no plane that satisfies these two conditions.
- c) Infinite planes.

6. If the intersections of two planes with a third plane are parallel, the planes are parallel.

- a) Not always.
- b) Always, if the planes are parallel to the vertical plane (XOZ).
- c) Always, if the planes are parallel to the horizontal plane (XOY).
- d) Always, if the planes are parallel to the profile plane (YOZ).
- e) The answers a), b) and c) are correct.
- f) Always.

7. Given a plane and a line:

- a) There is always a parallel plane to the given plane that contains the given line.
- b) It is not possible to find a parallel plane to the given plane that contains the given line.
- c) It is possible to find a parallel plane to the given plane that contains the given line, when the given line satisfies certain conditions.

8. Given the line $\begin{cases} x = 3 \\ y = 3 \end{cases}$, choose the correct answer:

- a) It is parallel to the OX axis.
- b) It is parallel to the OZ axis.
- c) It is perpendicular to the OX axis.
- d) The height of the points of the line is 3.

9. Given the line $\begin{cases} 2x + 3y - z = 1 \\ z = 2 \end{cases}$, choose the correct answer:

- a) It is parallel to the OZ axis.
- b) It is parallel to the plane $z = 2$.
- c) It is perpendicular to the plane YOZ.
- d) It is parallel to the plane YOZ.

10. Find the point of intersection between the line $\begin{cases} 2x + y = 2 \\ x - y + 3z = 1 \end{cases}$ and the plane $x - 13y - 8z + 41 = 0$.

- a) $\left(\frac{-1}{5}, \frac{12}{5}, \frac{6}{5}\right)$
- b) $\left(\frac{18}{17}, \frac{53}{5}, \frac{-2}{17}\right)$
- c) $\left(\frac{10}{19}, \frac{-23}{19}, \frac{35}{19}\right)$
- d) $\left(\frac{1}{2}, \frac{8}{3}, \frac{-2}{5}\right)$

11. Calculate the value of the parameter m so that the line $\frac{x}{1} = \frac{y-2}{m} = \frac{z+3}{2}$ does not intersect the plane $2x - 4y + 5z = 6$.

- a) -2
- b) 3
- c) 0
- d) 2

Solutions:

1) a

2) a

3) c

4) b

5) c

6) f

7) c

8) b

9) d

10) a

11) b