

SOLUCIONARIO GUÍA DE TRABAJOS PRÁCTICOS N°2
Rectas y Planos

1.

- a) $r_1: (x; y; z) = (1; 2; 3) + \lambda(-1; 0; 1)$
- b) $r_2: (x; y; z) = (1; 2; 3) + \alpha(1; 0; -1)$. No es única la recta
- c) $r_3: (x; y; z) = (1; 2; 3) + \beta(2; 2; 2)$

2.

- a) $P_1(-4; 0; 4); P_2(-2; 1; 4)$ y $P_3(-6; -1; 4)$
- b) $h = 6$
- c) $\vec{v} = (2; 1; 0)$
- d) $s: \begin{cases} x = 2\lambda \\ y = \lambda \\ z = 0 \end{cases}$

3.

$$r: (x; y; z) = (2; -1; 3) + \lambda(1; 2; 0)$$

4.

r y s son alabeadas

5.

- a) $P(4; 0; 0)$
- b) $m: (x; y; z) = (4; 0; 0) + \alpha(0; 0; 1)$
- c) $s: (x; y; z) = (3; 1; 0) + \beta(1; -1; 0)$

6.

- a) $\pi: 5x - 6y - z = -4$
- b) $P_1(0; 0; 4); P_2(1; 1; 3)$ y $P_3(-1; 0; -1)$
- c) $h = -2$

7.

- a) Falso
- b) Verdadero
- c) Falso

8.

- a) $\beta_1: z = 4$
- b) $\beta_2: x = 2$
- c) $\beta_3: y = -1$
- d) $\beta_4: 5x - 3y = 13$

9.

$$\pi: 2x + 4y = 0$$

10.

$$h = \frac{9}{5} \text{ y } m = \frac{27}{10}$$

11.

$$\pi: 14x + 13y + 4z = 52$$

12.

$$\text{a) } r: (x; y; z) = (2; -4; 5) + \lambda(-3; 4; 0)$$

$$\text{b) } s: (x; y; z) = (2; -4; 5) + t(1; 0; -1)$$

13.

$$r: (x; y; z) = (1; 0; 1/3) + \lambda(-1; 1; 0)$$

$$r: \begin{cases} x = -\lambda + 1 \\ y = \lambda \\ z = \frac{1}{3} \end{cases}$$

14.

$$d(P; Q) = \sqrt{355}$$

$$d(P; r) = \sqrt{\frac{242}{3}}$$

$$d(Q; r) = \sqrt{98}$$

15.

$$\text{a) } d(P; \pi) = \frac{16}{\sqrt{14}}$$

$$\text{b) } d(O; \pi) = \frac{5}{\sqrt{14}}$$

$$\text{c) } d(\beta; \pi) = \frac{3}{2\sqrt{14}}$$

16.

$$\text{a) } r \cap l = \{ \} \text{ ; } r \text{ y } l \text{ son alabeadas}$$

$$\text{b) } d(r; l) = \frac{14}{\sqrt{490}}$$

$$\text{c) } \widehat{r; l} \cong 95,16^\circ$$

17.

$$\text{a) } r \cap \pi = \left\{ \left(\frac{5}{2}; \frac{1}{2}; -\frac{3}{2} \right) \right\} \text{ ; } r \text{ y } \pi \text{ son secantes.}$$

$$\text{b) } d(r; \pi) = 0$$

$$\text{c) } \widehat{r; \pi} \cong 28,13^\circ$$

18.

$$P_1(-15; 8; -16) \text{ y } P_2(9; -4; 8)$$

19.

$$P(9; -4; 8)$$