



## ANALYTIC GEOMETRY AND PROBABILITY TEST



### 4º ESO

**Exercise 1: (1.5 ptos)** 37% of the adults of a certain village go to supermarket A to get the supplies for the week, while the rest of them go to supermarket B. 80% of the people who prefer supermarket A and 65% of the ones who prefer supermarket B also buy their fresh products in there. Getting a random person in the village find the probability that:

- They buy fresh products in a supermarket
- They go to supermarket B knowing that they buy their fresh products in local stores

**Exercise 2: (1.5 ptos)** In a certain village, not necessarily the same one, 70% of the adults buy fresh products in a supermarket, 35% in local stores, and 15% in both places depending on the prices and the quality. Find the probability that, when buying fresh products:

- They go to the supermarket or the local stores
- They go to a local store, given that they go to the supermarket
- They don't go to any of them (you can have a farm, ask for junk food or steal it from your mother when you go for a visit, as we have all done sometimes)

**Exercise 3: (2 ptos)** I get two cards of a Spanish deck without replacement. Find the probability of the following events:

- I get two cup cards
- I get an ace and a king
- I don't get any face cards
- I get at least a jack

**Exercise 4: (1 pt)** Find the general equation of the straight line going through  $P(3, -2)$  and  $Q(5, 9)$

**Exercise 5: (2 ptos)** Given the straight line  $r \equiv \frac{x+5}{2} = \frac{y-1}{-7}$

- Indicate a point and the direction vector
- Find its parametric equation
- Find the general equation of a parallel line going through the point  $A(-1, 4)$
- Find the general equation of a perpendicular going through the point  $B(2, -9)$

**Exercise 6: (1.5 ptos)** Find the parametric and continuous equations of the straight line  $r \equiv 5x - y - 3 = 0$ , indicating previously a point of the line and the direction vector

**Exercise 7: (0.5 ptos)** Indicate a point and the direction vector of  $r \equiv \begin{cases} x = 2t - 5 \\ y = -t \end{cases}$

