



## THIRD TERM GLOBAL TEST

### 4º ESO



**Exercise 1: (1.75 points)** Given the points  $A(k-1,6)$ ,  $B(-1,2)$  and  $C(k+2,k+2)$

- a) Find the value of  $k$  so that the triangle that they form is isosceles ( $\overline{AB} = \overline{BC}$ ) (1.25)  
b) Find the value of  $k$  (another one probably) so that the triangle has a right angle in  $B$  (0.5)

**Exercise 2: (2 points)** Given the points  $P(5,-3)$  and  $Q(-2,7)$

- a) Find the general equation of the line  $r$  that goes through them (1)  
b) Find the general equation of a perpendicular  $r'$  going through  $S(9,-1)$  (0.5)  
c) Find the continuous equation of  $r'$  (0.5)

**Exercise 3: (1.25 points)** In an urn we have 7 red balls, 5 blue balls and 1 green ball. I get 2 balls without replacement. Find the probability that:

- a) (0.5) I get a red ball and a blue one  
b) (0.25) I get two green balls  
c) (0.5) I get at least one blue ball

**Exercise 4: (1.5 points)** 57% of the people working at a company drink coffee during the morning break, while the rest prefer tea. Now that it's getting awfully hot, 65% of the ones who drink coffee and 20% of the ones who drink tea ask the waiter to add ice cubes to their cups. Taking a random worker find the probability that:

- a) They have asked for ice  
b) They are drinking tea knowing that the cup is scalding hot

**Exercise 5: (1 point)** If  $\sin \alpha = 0.17$  and  $\frac{\pi}{2} < \alpha < \pi$  find the values of  $\cos \alpha$ ,  $\tan \alpha$  and the angle  $\alpha$  expressed using degrees, minutes and seconds

**Exercise 6: (1 pto)** Given the vectors  $\vec{u} = (22,13)$ ,  $\vec{v} = (6,7)$  and  $\vec{w} = (-2,4)$  write  $\vec{u}$  as a linear combination of  $\vec{v}$  and  $\vec{w}$

Turn the paper around → → → → →



**Exercise 7: (1.5 points)** The second-tallest building in the world is the Merdeka 118 in Kuala Lumpur, Malaysia. Find its height knowing that the angles measure  $72^\circ$  and  $87.52^\circ$  and that the distance between the two points where I checked them is of 250 m

