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)

$\boxed{k=1 \quad k=-7}$

b) Find the value of k (another one probably) so that the triangle has a right angle in B (0.5)

$\boxed{k=0 \quad k=-7}$

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)

$\boxed{10x+7y-29=0}$

b) Find the general equation of a perpendicular r' going through $S(9,-1)$ (0.5)

$\boxed{7x-10y-73=0}$

c) Find the continuous equation of r' (0.5)

$\boxed{\frac{x-9}{10}=\frac{y+1}{7}}$

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 $p=35/78$

b) **(0.25)** I get two green balls

$p=0$ You can't write $\varnothing$, the probability of an event is a number

c) **(0.5)** I get at least one blue ball $p=25/39$

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 $p=0.4565$

b) They are drinking tea knowing that the cup is scalding hot $p=0.6329$

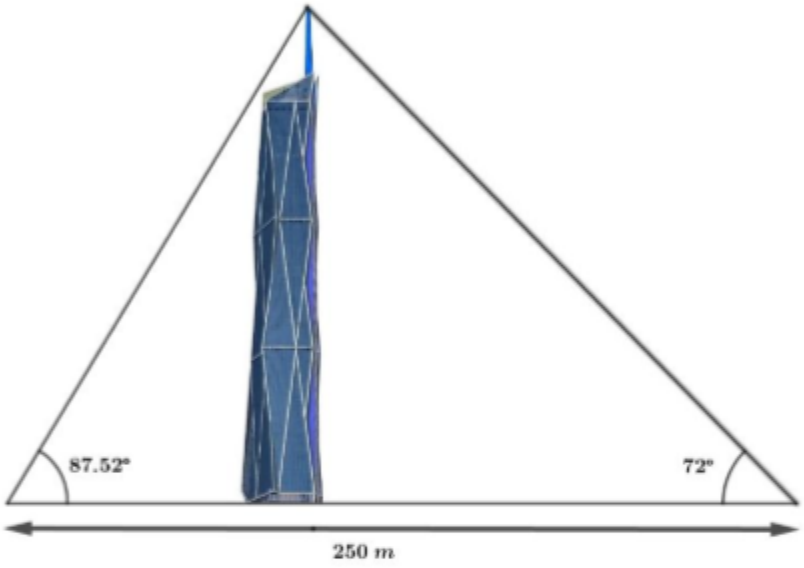
Exercise 5: (1 point) If $\sin\alpha = 0.17$ and $\frac{\pi}{2} < \alpha < \pi$ find the values of $\cos\alpha$, $\tan\alpha$ and the angle α expressed using degrees, minutes and seconds

$\cos\alpha = -0.9854$ $\tan\alpha = -0.1725$ $\alpha = 170°12'44"$

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 $\vec{w}$

$\boxed{\vec{u} = 3\vec{v} - 2\vec{w}}$

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 $72°$ and $87.52°$ and that the distance between the two points where I checked them is of 250 m



$h = 678.92$ m