

## GEOMETRY TEST - 4° ESO

### Exercise 1: (1 pto)

- Write the continuous equation of the straight line given by  $r \equiv 7x + 5y - 19 = 0$
- Find the general equation of a straight line  $r'$  that's perpendicular to  $r$  and goes through the point  $P(5, -2)$

### Exercise 2: (1.5 ptos)

- Find the symmetric of the point  $Q(3, -7)$  with respect to  $R(2, 5)$
- Write  $\vec{w} = (-4, 3)$  as a linear combination of  $\vec{u} = (5, 1)$  and  $\vec{v} = (-2, 9)$

### Exercise 3: (2 ptos) Given the straight line $r \equiv \frac{x+5}{4} = 3-y$

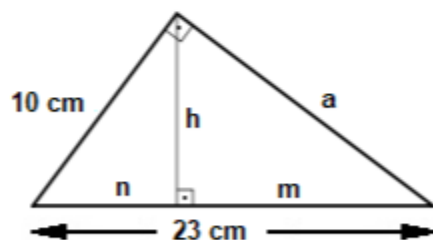
- Indicate a point and the direction vector  $\vec{u}$ .
- Find  $|\vec{u}|$
- Write the general equation of a straight line  $r'$  that's parallel to  $r$  and goes through the point  $A(-1, 3)$
- Write the parametric equations of  $r'$

### Exercise 4: (1 pto) Given the vectors $\vec{u} = (2, 1)$ and $\vec{v} = (-3, 4)$ , find another vector $\vec{w}$ so that $\vec{w}$ is orthogonal to $\vec{v}$ and $\vec{u} \cdot \vec{w} = 22$

### Exercise 5: (1.75 ptos)

- Given the points  $A(k+1, 3)$ ,  $B(2k, -2)$  and  $C(3k-2, 2k-2)$ , find the value of  $k$  so that the triangle  $ABC$  is isosceles
- Find the value of  $m$  so that the vectors  $\vec{u} = (m-3, 8)$  and  $\vec{v} = (m+3, m)$  are perpendicular

### Exercise 6: (1 pto) Find the values of the sides of the triangle using the right triangle altitude theorems:



**Exercise 7: (1.75 pts)** Work out the value of the area and the volume of a regular pentagonal pyramid if the length of the side of the base is 13 cm, its radius measures 10 cm and the edge of the faces has a length of 12 cm

