TRIGONOMETRY AND ANALYTIC GEOMETRY TEST

4º ESO

Exercise 1: (1 pto) If $\tan\alpha = 1.75$, $\pi < \alpha < \frac{3\pi}{2}$ find the values of $\cos\alpha$, $\sin\alpha$ and the angle α

Exercise 2: (1.25 ptos) Find the three principal trigonometric functions of $\alpha = \frac{7\pi}{6}\text{rad}$ without using a calculator

Exercise 3: (1 pto) Convert:

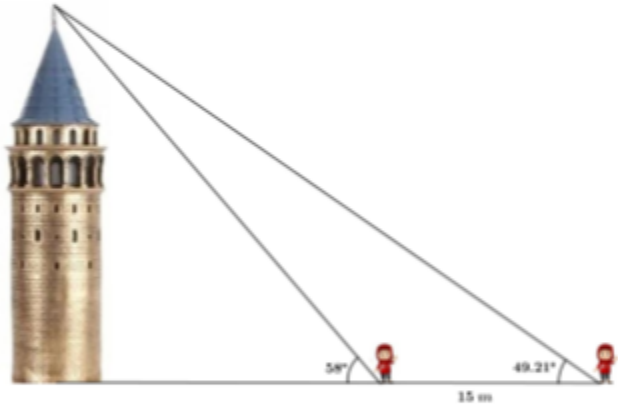
a) $\frac{11\pi}{15}\text{rad}$ into degrees

b) $165°$ into radians

c) $\frac{17\pi}{12}\text{rad}$ into degrees

d) $315°$ into radians

Exercise 4: (1.5 ptos) İstanbul, here I am. Buradayım. I'm going to use what I learnt in class to work out the height of the Galata Kulesi. I get my goniometer out of the pocket of my backpack and check the angle from my position to the top: $49.21°$. Then I walk 15 m closer and check the angle again: $58°$. Jeez, I've forgotten my calculator at home. Bana yardım et! What's its height?



Exercise 5: (1.25 ptos) Prove that the triangle given by the points $A(-1,8)$, $B(5,6)$ and $C(7,12)$ has a right angle. Where is it?

Exercise 6: (1.75 ptos) Given the points $A(3,k+1)$, $B(4,7k)$ and $C(k+7,k+2)$ find the value of k so that the triangle that they form is isosceles in A

Exercise 7: (1 pto) Given the vectors $\vec{u} = (-2,22)$, $\vec{v} = (4,8)$ and $\vec{w} = (3,-7)$ write $\vec{u}$ as a linear combination of $\vec{v}$ and $\vec{w}$

Exercise 8: (1.25 ptos) Find the value of *k* so that the vectors $\vec{u} = (k-1,-7)$ and $\vec{v} = (k+1,k-1)$ are perpendicular