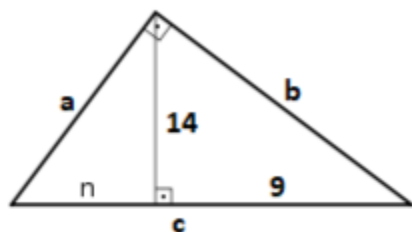


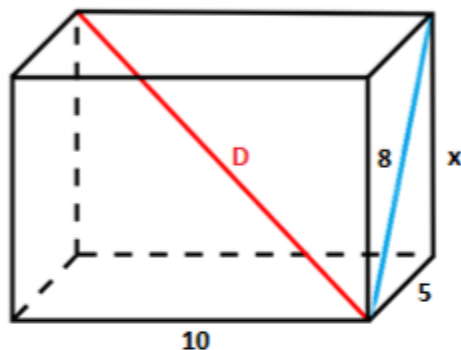
THIRD TERM GLOBAL TEST - 4° ESO

Exercise 1: (1 point) Find the values of the sides of the triangle using the right triangle altitude theorems:



$$\begin{aligned} n &= 21.78 \\ c &= 30.78 \\ b &= 16.64 \\ a &= 25.89 \end{aligned}$$

Exercise 2: (0.75 points) Find the value of the axial diagonal and the altitude of this cuboid:



$$\begin{aligned} x &= 6.24 \\ D &= 12.80 \end{aligned}$$

Exercise 3: (2.25 points) Solve the following questions:

a) Given the vectors $\vec{u} = (2, -1)$, $\vec{v} = (-1, 5)$, $\vec{w} = (7, 3)$, write \vec{w} as a linear combination of

\vec{u} and \vec{v} $\vec{w} = \frac{38}{9}\vec{u} + \frac{13}{9}\vec{v}$

b) Find the value of the constant k so that the vectors $\vec{u} = (k+1, k-1)$ and $\vec{v} = (k-1, -7)$ are perpendicular $k=1$ $k=6$

c) Find the symmetric of $P(2, -6)$ with respect to $A(5, 4)$ $P'(8, 14)$

Exercise 4: (1.5 points) Given the straight line $r \equiv \frac{x+2}{3} = \frac{y-1}{4}$

a) Write the parametric and the general equations of r

$$r \equiv \begin{cases} x = -2 + 3t \\ y = 1 + 4t \end{cases} \rightarrow 4x - 3y + 11 = 0$$

b) Find the length of the direction vector $|\vec{u}| = 5$

c) Find the general equation a perpendicular line that passes through the point $B(-2, 7)$
 $3x + 4y - 22 = 0$

Exercise 5: (0.75 points) Find the continuous and general equations of the straight line that goes through the points $P(2, -3)$ and $B(5, 7)$

$$10x - 3y - 29 = 0 \rightarrow \frac{x-2}{3} = \frac{y+3}{10}$$

Exercise 6: (1.25 points) Right now, because of the football world cup in Russia, there are many offers to buy a TV set. We know that 87% of the Spanish people will follow the competition. 23% of the ones who will watch the matches have bought a new TV set, but also 17% of the ones who are not interested on football. Taking a random person, find the probability that:

- a) They haven't bought a new TV set 0.7778
- b) They are going to watch the matches on TV, given that they have bought a new TV set 0.9

Exercise 7: (1.5 points) I draw two cards from a Spanish deck of cards without replacement. Find the probability that:

- a) I get two club cards $3/52 = 0.0577$
- b) I don't get any aces $21/26 = 0.8077$
- c) Both cards have the same number $1/13 = 0.0769$
- d) I get at least one face card $67/130 = 0.5154$

Exercise 8: (1 point) Given two events A and B so that $P(A) = 0.6$, $P(\bar{B}) = 0.3$, and $P(A \cup B) = 0.88$, find:

- a) $P(A \cap B) = 0.42$
- b) $P(A / B) = 0.6$
- c) Are the events mutually exclusive? Are they independent? Why?
They are not mutually exclusive because $P(A \cap B) \neq 0$. They are independent because $P(A \cap B) = P(A) \cdot P(B)$