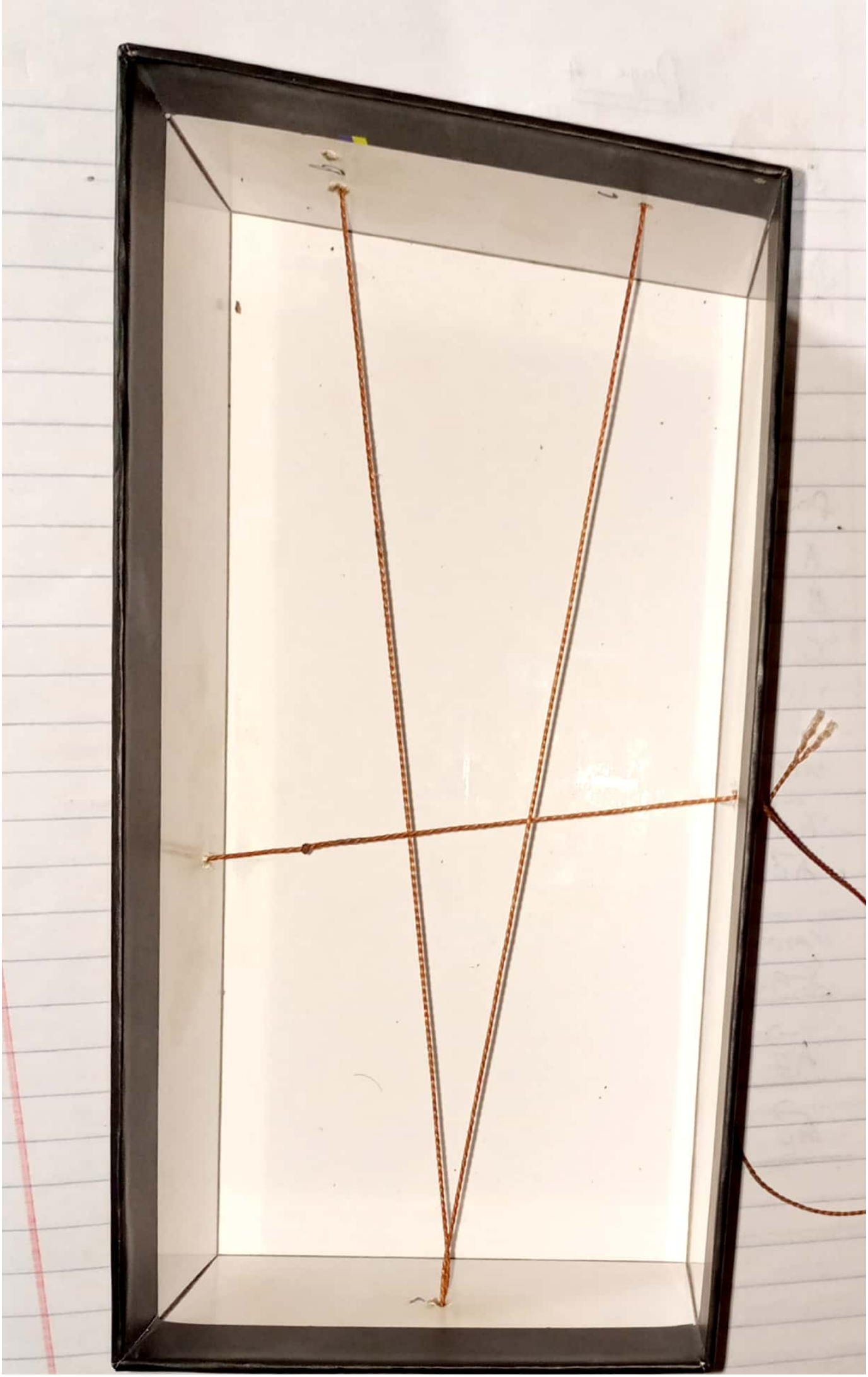

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Box Dimension	x	y	z
Dimension in (Cm)	-18	9	6.

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Point	x	y	z
A	-18	7	4
B	-18	6	3
C	-18	5	2.

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Write Parametric Equation for the vectors.

$\vec{AB}$ Use t for the parameter

$\vec{AC}$ Use s for the parameter.

Parametric Equation	x	y	z
$\vec{AB}$	$x_0 - 18t$	$y_0 + 9t$	$z_0 + 6t$.
$\vec{AC}$	$x_0 - 18s$	$y_0 + 9s$	$z_0 + 6s$

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Vector Equation	$\langle x, y, z \rangle = \langle a, b, c \rangle + t\langle x, y, z \rangle$
$\vec{AB}$	$\langle 18, -5, 17 \rangle + t\langle -18, 9, 6 \rangle \Rightarrow \langle 18-18t, -5+9t, 17+6t \rangle$
$\vec{AC}$	$\langle 18, 5, -17 \rangle + s\langle -18, 9, 6 \rangle \Rightarrow \langle 18-18s, 5+9s, -17+6s \rangle$

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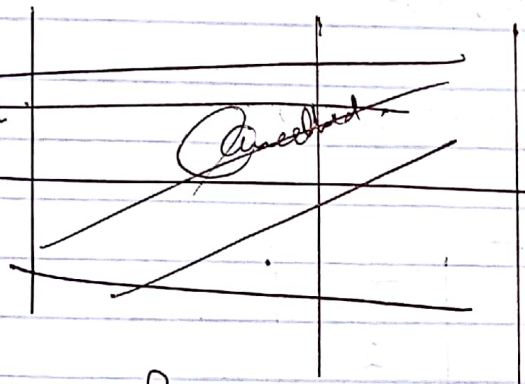
Vector Equation



18

(18, 5, 17) (-18 9 6)

$18(-18) + 5(9) + 17(6) + D = 0$

$= -324 + 45 + 102 + D = 0$

$D = 177$ ∴

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Vector Equation $\langle x, y, z \rangle = \langle 18, 5, 17 \rangle + t\langle -18, 9, 6 \rangle + s\langle -18, 9, 6 \rangle$

$\vec{\langle \delta \rangle}$ $\langle 18 - 18t - 18s,\ 5 + 9t + 9s,\ 17 + 6t + 6s \rangle$

Scalar Equation

	A	B	C	D
	18	5	17	177

Scalar Equation

$Ax + By + Cz + D = 0$

$18x + 5y + 17c + 177 = 0$

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~~$y = 5t$~~ $y = 5 - 5t$

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Calculate Point D $= (-7.5, 0, 2)$

Calculate Point E $= (0, 4.5, 3.4)$

Point	x	y	z
D	-7.5	0	2
E	0	4.5	3.4

D $\langle -7.5, 0, 2 \rangle$

E $\langle 0, 4.5, 3.4 \rangle$

Vector Equation	$\langle \vec{DE} \rangle = \langle a\ b\ c \rangle + t \langle x, y, z \rangle$
$\vec{DE}$	$\langle -7.5t, 4.5, 3.4 + 2t \rangle$

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Determine the intersection point lines AB and DE. This is Part F

F ⟨ 7.4, 4, 8.2 ⟩

& ⟨ 8.5, 2.5, 8.2 ⟩

$d = 2.5\,cm$.

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Parametric equation	Response	Check
x	$x = -18 + t$	
y	$y = 9 + t$	
z	$z = t$	

$\langle \vec{\gamma} \rangle = \langle -18 + t,\ 9 + t,\ t \rangle$

Parametric Equation	Response
x	$x = -18 + t$
y	$y = 9 + t$
z	$z = 6 + t$

$\langle \vec{\gamma} \rangle = \langle -18 + t,\ 9 + t,\ 6 + t \rangle$