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EXPERIMENT

1

APPARATUS NUMBER

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Do not
write here

Part 1:

 $\theta = \pi$ radians M'_p = Mass in the pan ΔM_p is the worst case uncertainty in M_p .

Obs. No.	M_w/g	M'_{p-}/g	M'_{p+}/g	M'_p/g	$\Delta M_p/g$

Graph: _____ vs _____



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EXPERIMENT

1

Part 1:

$$M_w = 800.0 \text{ g,}$$

$$M_{\text{pan}} = \underline{\hspace{2cm}}$$

M'_p = Mass in the pan

Obs. No.	θ /rad	M'_{p-} /g	M'_{p+} /g	M'_p /g	$\Delta M_p /g$

Graph:

1. _____ vs _____

2. _____ vs _____

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EXPERIMENT

1

Part 1:

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EXPERIMENT

1

Part 1:

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The Relation:

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$\mu = \text{_____} \pm \text{_____}$

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EXPERIMENT

1

Part 2:

$$\theta = \pi$$

The equations used to determine M_u and μ_u :

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Observations:

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EXPERIMENT

1

Part 2:

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$$M_u = \text{_____} \pm \text{_____}$$

$$\mu_u = \text{_____} \pm \text{_____}$$

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EXPERIMENT

2

APPARATUS NUMBER

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Coil 1: air core

	R/Ω	V_A/V	$\Delta V_A/V$	V/V	$\Delta V/V$	V_R/V	$\Delta V_R/V$	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z/Ω	R/Ω	X/Ω	L/H
Coil 1 air core				

	$u_s(Z)$	$u_s(R)$	$u_r(Z)$	$u_r(R)$	$u_c(Z)$	$u_c(R)$	$u_c(X)$	$u_c(L)$
Coil 1 air core								

R_1		$\pm$	Ω
L_1		$\pm$	mH



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EXPERIMENT

2

Coil 2: air core

	R/Ω	V_A/V	$\Delta V_A/V$	V/V	$\Delta V/V$	V_R/V	$\Delta V_R/V$	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z/Ω	R/Ω	X/Ω	L/H
Coil 2 air core				

	$u_s(Z)$	$u_s(R)$	$u_r(Z)$	$u_r(R)$	$u_c(Z)$	$u_c(R)$	$u_c(X)$	$u_c(L)$
Coil 2 air core								

R_2		$\pm$	Ω
L_2		$\pm$	mH



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Coil 1: Al core

	R'/Ω	V_A/V	$\Delta V_A/V$	V/V	$\Delta V/V$	V_R/V	$\Delta V_R/V$	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z^*/Ω	R^*/Ω	X^*/Ω	L^*/H
Coil 1 Al core				

	$u_s(Z^*)$	$u_s(R^*)$	$u_r(Z^*)$	$u_r(R^*)$	$u_c(Z^*)$	$u_c(R^*)$	$u_c(X^*)$	$u_c(L^*)$
Coil 1 Al core								

R^*_1		$\pm$	Ω
L^*_1		$\pm$	mH



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Coil 2: Al core

	R/Ω	V_A/V	$\Delta V_A/V$	V/V	$\Delta V/V$	V_R/V	$\Delta V_R/V$	V_O/V
With one polarity								
With reverse polarity								
Average								

	Z^*/Ω	R^*/Ω	X^*/Ω	L^*/H
Coil 2 Al core				

	$u_s(Z^*)$	$u_s(R^*)$	$u_r(Z^*)$	$u_r(R^*)$	$u_c(Z^*)$	$u_c(R^*)$	$u_c(X^*)$	$u_c(L^*)$
Coil 2 Al core								

R^*_2		$\pm$	Ω
L^*_2		$\pm$	mH



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EXPERIMENT

2

PART 2

$M_{12} =$ mH

$M_{21} =$ mH

$M_{av} =$ mH

$k =$

$M^*_{12} =$ mH

$M^*_{21} =$ mH

$M^*_{av} =$ mH

$k^* =$



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EXPERIMENT

2

R						
$R' = 300 \Omega$						
	<i>Obs No</i>	R_L/Ω	V_A/V	V/V	$V_{R'}/V$	V_O/V
With one polarity	1					
With reverse polarity						
Average						
With one polarity	2					
With reverse polarity						
Average						



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EXPERIMENT

2

	Obs No	R_L/Ω	V_A/V	V/V	$V_{R'}/V$	V_A/V
With one polarity						
With reverse polarity						
Average						
With one polarity						
With reverse polarity						
Average						
h) Linearised equation for graph						



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EXPERIMENT

2

M and X_s from graph

$M =$ mH

$X_s =$ Ω



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EXPERIMENT

2

PART 3

K and I) Calculated data

	R_L/Ω	Z_{PE}	R_{PE}	X_{PE}	R_R	X_R

Inference from graph of X_{PE} vs X_R expressed in the form of an equationValue of R_L at which R_R is maximum Ω



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EXPERIMENT

2

PART 4

For coil 1 $L_{\text{core}}/R_{\text{core}} =$

For coil 2 $L_{\text{core}}/R_{\text{core}} =$

Δ

Formula giving ΔP

$\Delta P =$ mW

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