

<b>Codice</b>						
<b>Studente</b>						

**Determinazione del gradiente dell'indice di rifrazione e del coefficiente di diffusione di una soluzione salina mediante misure di deflessione della luce laser(10 pt.)**

**A. Misurazione del gradiente dell'indice di rifrazione di una soluzione salina (4.5 pt.)**

<b>Quesito</b>	<b>Risposta</b>	<b>Punti</b>
A.1 (1.2 pt.)	<p>Consegna il foglio di carta millimetrata che hai usato per costruire il grafico della deflessione della luce laser. Stai attento a scrivere il tuo codice studente e la concentrazione della soluzione che hai usato sul foglio di carta millimetrata.</p>	<p>Diagramma della deflessione</p> <p><math>C_0 = 23</math> g/150 mL</p>
A.1	<p>Consegna il foglio di carta millimetrata che hai usato per costruire il grafico della deflessione della luce laser. Stai attento a scrivere il tuo codice studente e la concentrazione della soluzione che hai usato sul foglio di carta millimetrata.</p>	<p>Diagramma della deflessione</p> <p><math>C_0 = 28</math> gr/150 mL</p>

A.1

Diagramma  
della  
deflessione

$C_0 = 33 \text{ g/150 mL}$

Consegna il foglio di carta millimetrata che hai usato per costruire il grafico della deflessione della luce laser. Stai attento a scrivere il tuo codice studente e la concentrazione della soluzione che hai usato sul foglio di carta millimetrata.

A2.

(1.5 pt.)

$i$	$\delta_i$ (cm)	$\xi_i$ (cm)	$Z_0$ (cm)	$d$ (cm)	$Z$ (cm)
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Tabella1

relativa a

$C_0 = 23 \text{ g/150 mL}$

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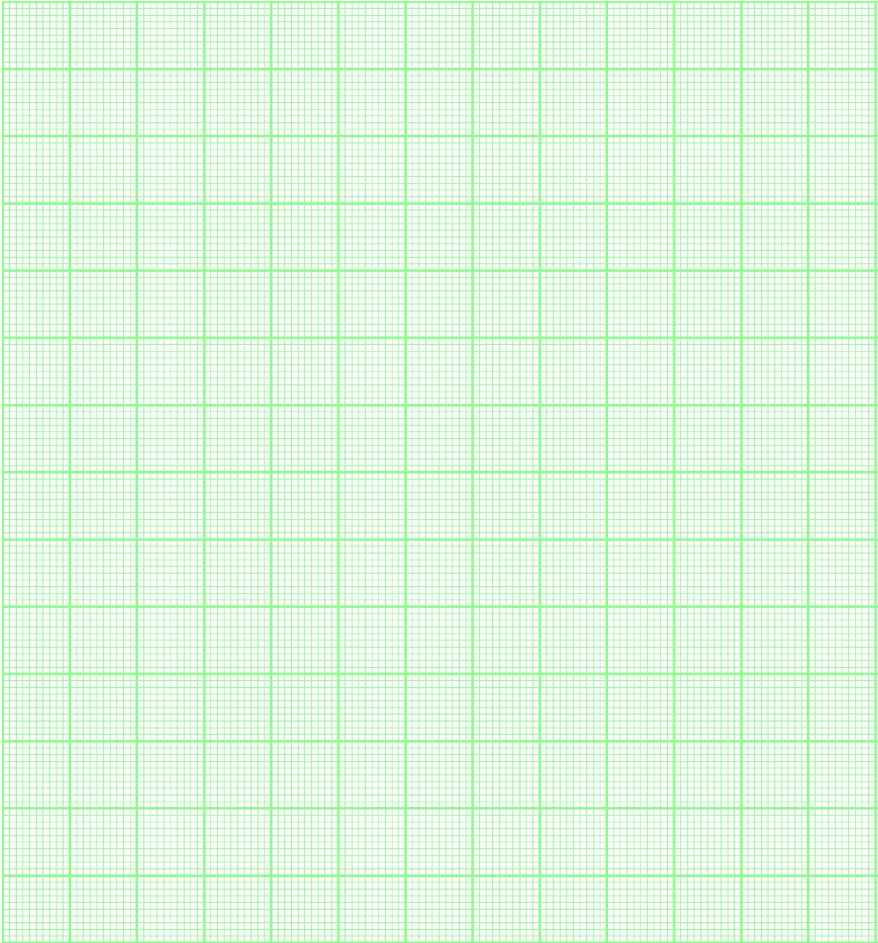
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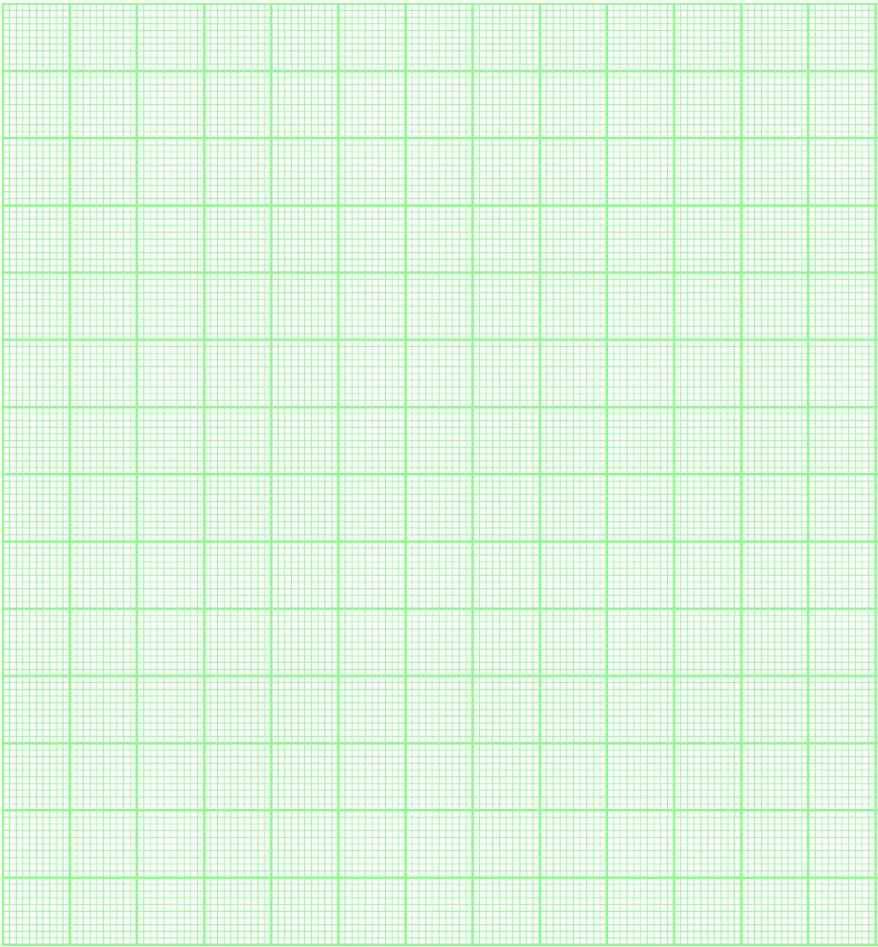
A.3  
(1.5 pt.)

$i$	$Y_i$ (cm)	$dn/dY$
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Tabella 2 di

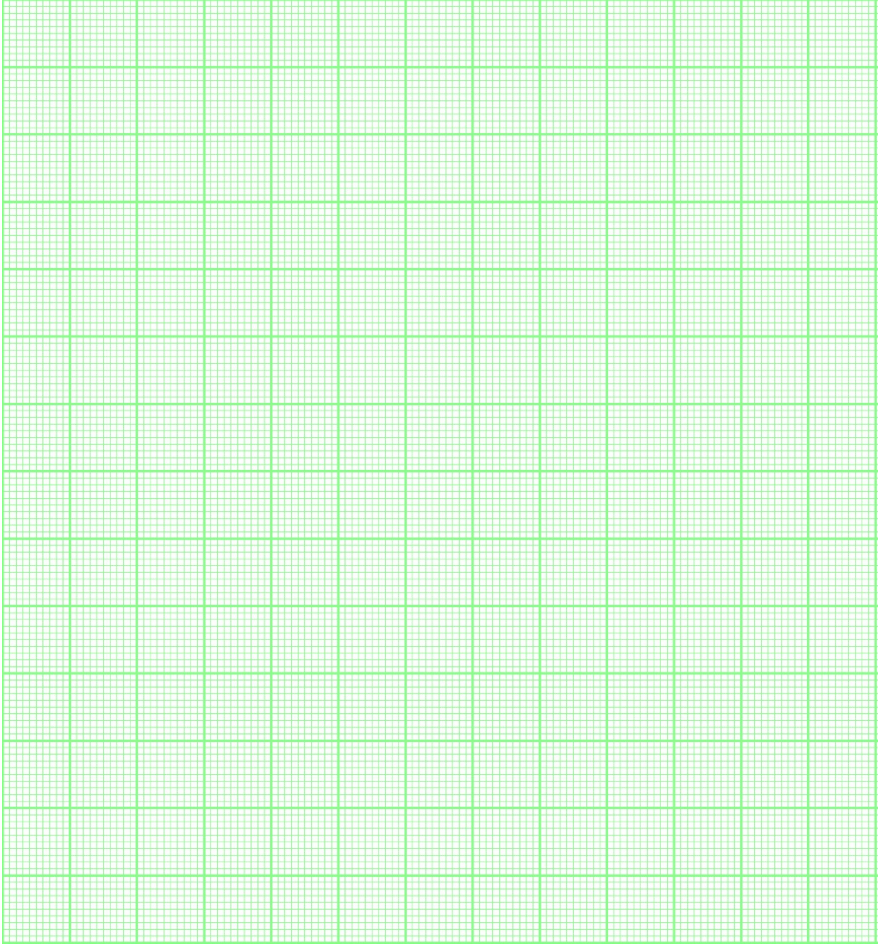
$C_0 = 23$  g/150  
mL

A.3		Grafico $\frac{dn}{dY}$ in funzione di $Y$ $C_0 = 23 \text{ g/150 mL}$																																	
A.3	<table><tr><th><math>i</math></th><th><math>Y_i \text{ (cm)}</math></th><th><math>dn/dY</math></th></tr><tr><td>1</td><td></td><td></td></tr><tr><td>2</td><td></td><td></td></tr><tr><td>3</td><td></td><td></td></tr><tr><td>4</td><td></td><td></td></tr><tr><td>5</td><td></td><td></td></tr><tr><td>6</td><td></td><td></td></tr><tr><td>7</td><td></td><td></td></tr><tr><td>8</td><td></td><td></td></tr><tr><td>9</td><td></td><td></td></tr><tr><td>10</td><td></td><td></td></tr></table>	$i$	$Y_i \text{ (cm)}$	$dn/dY$	1			2			3			4			5			6			7			8			9			10			Tabella 2 di $C_0 = 28 \text{ g/150 mL}$
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A.3		<p>Grafico</p> <p><math>\frac{dn}{dY}</math> in funzione di <math>Y</math></p> <p><math>C_0 = 28 \text{ g/150 mL}</math></p>																														

A.3	<i>i</i>	<i>Y<sub>i</sub></i> (cm)	<i>dn/dY</i>	Tavola 2 di  <i>C</i> <sub>0</sub> = 33 g/150 mL
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A.3		<p>Grafica</p> <p><math>\frac{dn}{dY}</math> in funzione di <math>Y</math></p> <p><math>C_0 = 33 \text{ g/150 mL}</math></p>
<p>A.4</p> <p>(0.3 pt.)</p>	<p><math>h</math> per 23 g/150 mL =            cm</p> <p><math>h</math> per 28 g/150 mL =            cm</p> <p><math>h</math> per 33 g/150 mL =            cm</p>	

## B: Misurazione del Coefficiente di Diffusione (4.2 points)

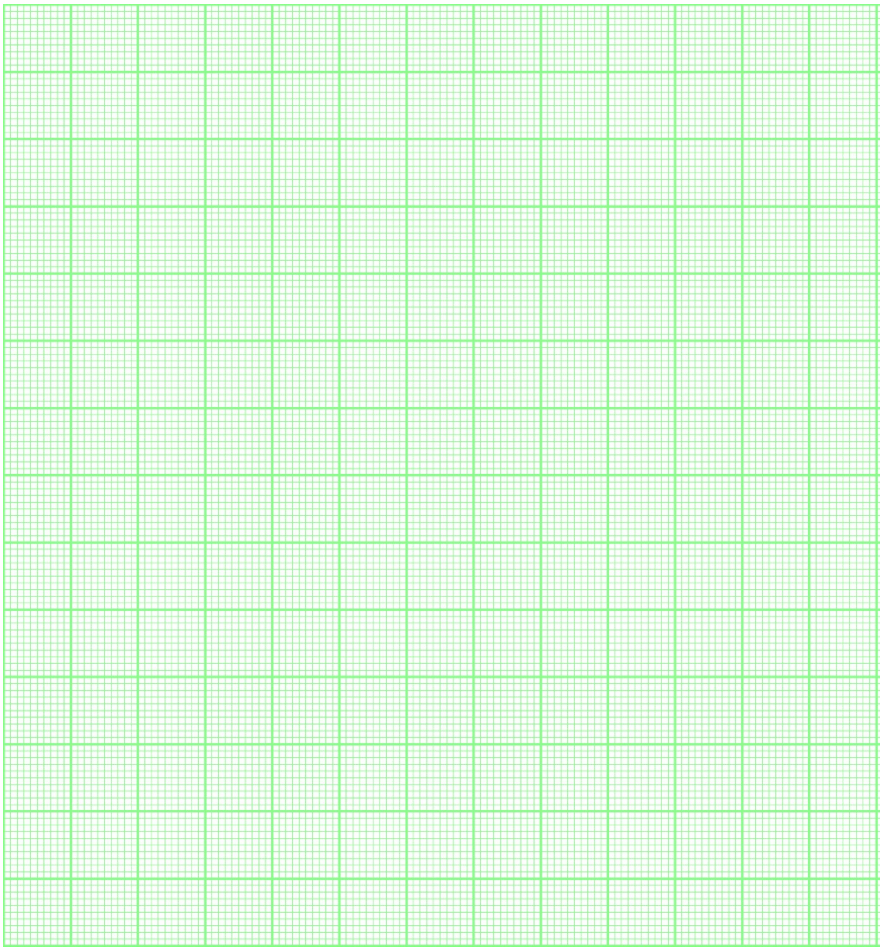
Quesito	Risposta	Punti
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<p>B.1 (0.9 pt.)</p>	<p>Forma linearizzata dell'equazione (3)</p>	
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<p>B.2 (1.8 pt.)</p>	<table border="1" data-bbox="301 698 805 1536"> <tr><td><math>t</math></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td></tr> <tr><td>16</td><td></td><td></td></tr> <tr><td>17</td><td></td><td></td></tr> <tr><td>18</td><td></td><td></td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> </table>	$t$			1			2			3			4			5			6			7			8			9			10			11			12			13			14			15			16			17			18			19			20			<p>Tabella 3 di <math>C_0 = 23 \text{ g/150 mL}</math></p>
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<p>B.2</p>		<p>Grafico della Tabella 3 <math>C_0 = 23 \text{ g/150 mL}</math></p>
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$m$  (pendenza del grafico) =

B.2

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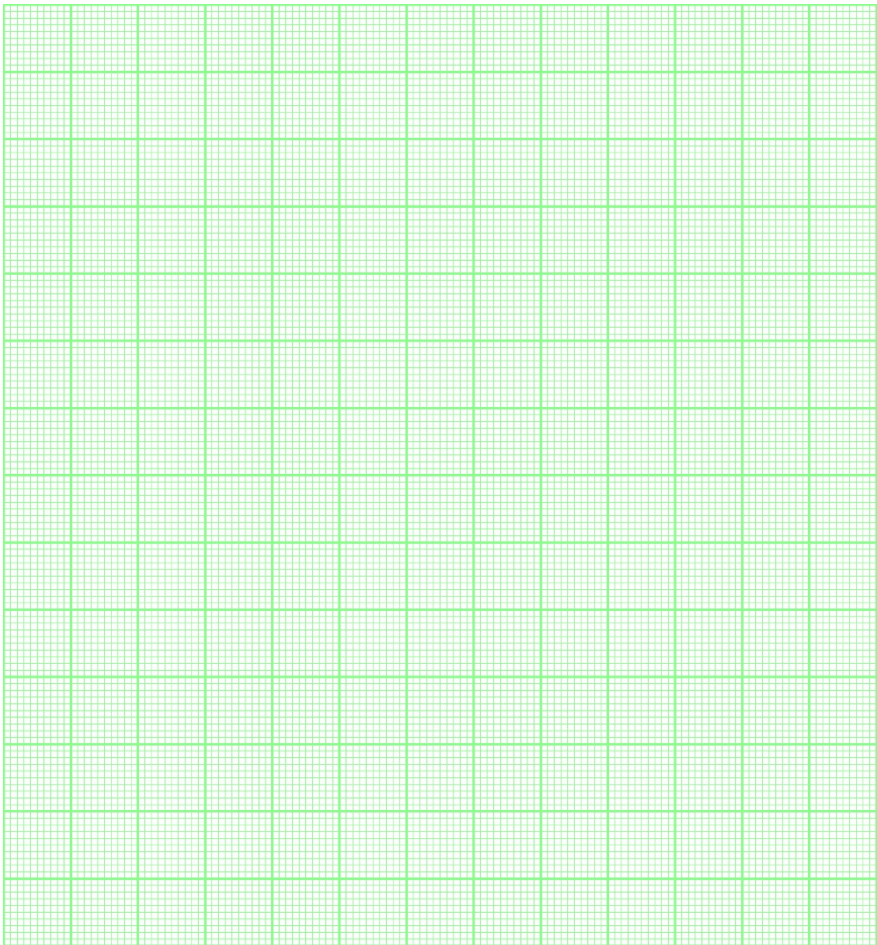
Tabella 3 di  
 $C_0 = 28 \text{ g/150 mL}$

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B.2	<div></div> <p><math>m</math> (pendenza del grafico) =</p>	<p>Grafico della Tabella 3</p> <p><math>C_0 = 28 \text{ g/150 mL}</math></p>
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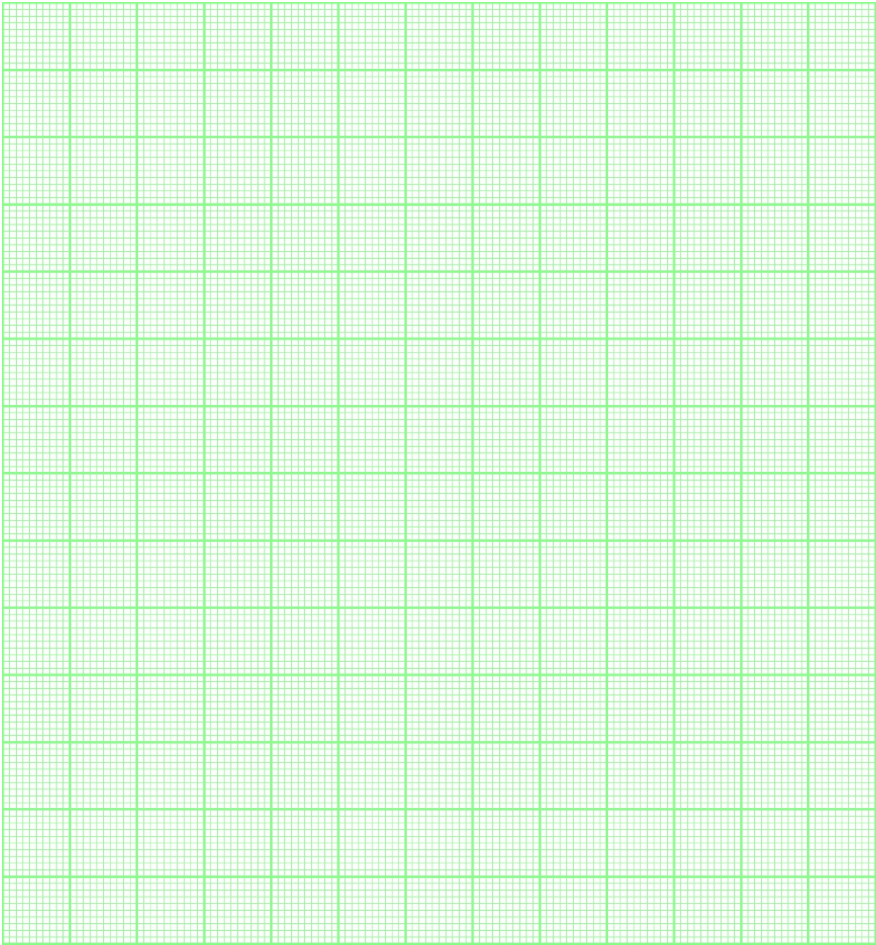
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	 <p><math>m</math> (pendenza del grafico) =</p>	
<p>B.3 (1.5 pt.)</p>	<p><math>D</math> per 23 g/150 mL =      <math>\text{cm}^2/\text{s}</math></p> <p><math>D</math> per 28 g/150 mL =      <math>\text{cm}^2/\text{s}</math></p> <p><math>D</math> per 33 g/150 mL =      <math>\text{cm}^2/\text{s}</math></p>	

## C. Diffusione non lineare (1.3 punti)

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Quesito	Risposta	Punti
<p>C.1 (1.3 pt.)</p>		<p>Grafico di <math>D</math> in funzione di <math>C_0</math></p>
<p>C.1</p>	<p>Il tasso con cui varia il coefficiente di diffusione rispetto alla variazione della concentrazione della soluzione salina:</p>	