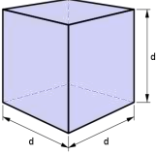
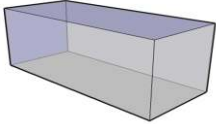
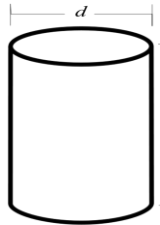
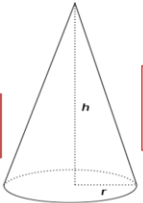
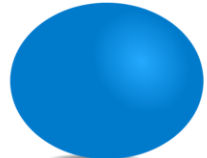


FORMULARIO DI FISICA


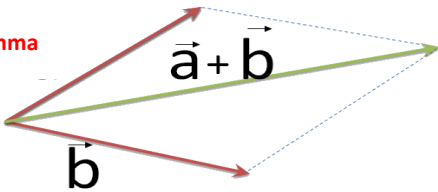
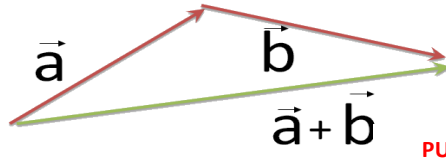
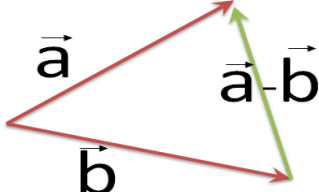
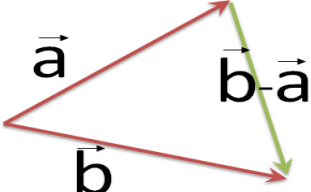
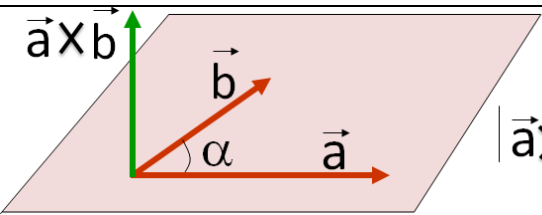
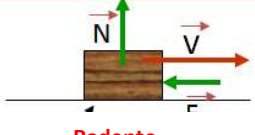

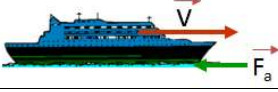
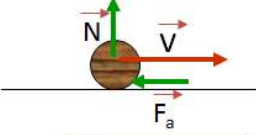
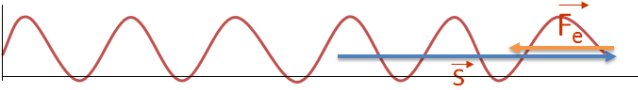
Sommario

GRANDEZZE E MISURA	2
VETTORI E FORZE	3
CINEMATICA.....	4
DINAMICA	5
FLUIDI.....	6
TERMOLOGIA E TERMODINAMICA.....	7
ELETTROMAGNETISMO	8

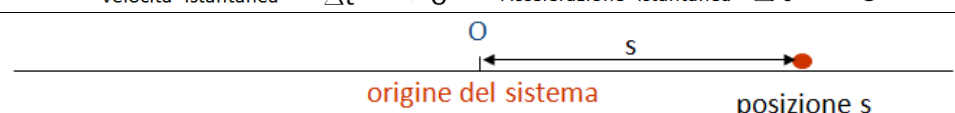
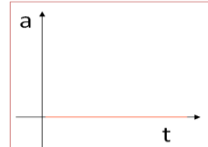
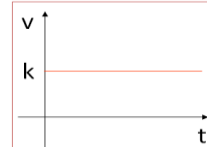
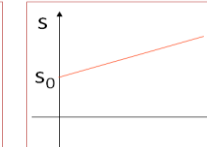

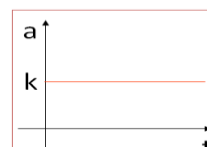
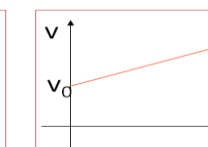
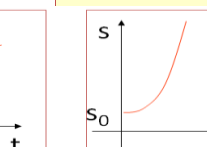
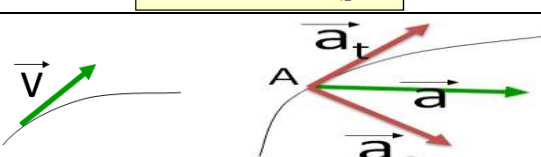
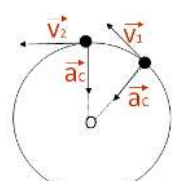
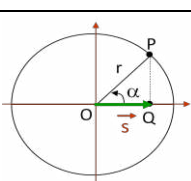
GRANDEZZE E MISURA

PREFISSI	Nome	Simbolo	Moltiplica	
	giga	G	$1\,000\,000\,000 = 10^9$	
	mega	M	$1\,000\,000 = 10^6$	
	kilo	k	$1\,000 = 10^3$	
	etto	h	$100 = 10^2$	
	deca	da	$10 = 10^1$	
	deci	d	$\frac{1}{10} = 10^{-1}$	
	centi	c	$\frac{1}{100} = 10^{-2}$	
	milli	m	$\frac{1}{1\,000} = 10^{-3}$	
	micro	μ	$\frac{1}{1\,000\,000} = 10^{-6}$	
nano	n	$\frac{1}{1\,000\,000\,000} = 10^{-9}$		
UNITA' DI VOLUME	Nome	Simbolo	Valore in m³	
	decimetro cubo (litro)	dm ³ (L)	$\frac{1}{1\,000} = 10^{-3}$	
	centimetro cubo (millilitro)	cm ³ (mL)	$\frac{1}{1\,000\,000} = 10^{-6}$	
CALCOLO DEI VOLUMI	 $V = L^3$	 $V = L_1 \cdot L_2 \cdot L_3$		
	 $V = \pi r^2 h$	 $V = \frac{1}{3} \pi r^2 h$		
	 $V = \frac{4}{3} \pi r^3$			
	$d = \frac{m}{V}$			
DENSITA' E PESO SPECIFICO	$p_s = \frac{p}{V} = \frac{mg}{V} = dg$			
TABELLA UNITA' DI MISURA	GRANDEZZA	SI (MKS)	CGS	PRATICO
	LUNGHEZZA	METRO (m)	CENTIMETRO (cm)	METRO (m)
	AREA	$m^2 = 10^4 \text{ cm}^2$	$cm^2 = 10^{-4} m^2$	m^2
	VOLUME	$m^3 = 10^6 \text{ cm}^3$	$cm^3 = 10^{-6} m^3$	m^3
	MASSA	KILOGRAMMO (kg)	GRAMMO (g)	KILOGRAMMO (kg = kgp·s²/9,8 m)
	TEMPO	SECONDO (s)	SECONDO (s)	SECONDO (s)
	FORZA	NEWTON (N = kg·m/s²) $1 \text{ N} = 10^5 \text{ dyn}$	DINE (dine = g·cm/s²) $1 \text{ dine} = 10^{-5} \text{ N}$	KILOGRAMMO PESO (kgp)
	DENSITA'	$kg/m^3 = 10^3 \text{ g/cm}^3$	$g/cm^3 = 10^{-3} \text{ kg/m}^3$	kg/m^3
	PESO SPECIFICO	$N/m^3 = 10^{-1} \text{ dine/cm}^3$	$dine/cm^3 = 10 \text{ N/m}^3$	$kgp/m^3 = 9,8 \text{ N/m}^3$

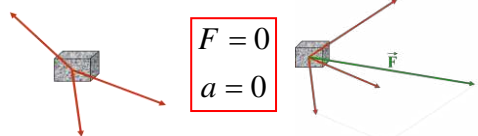
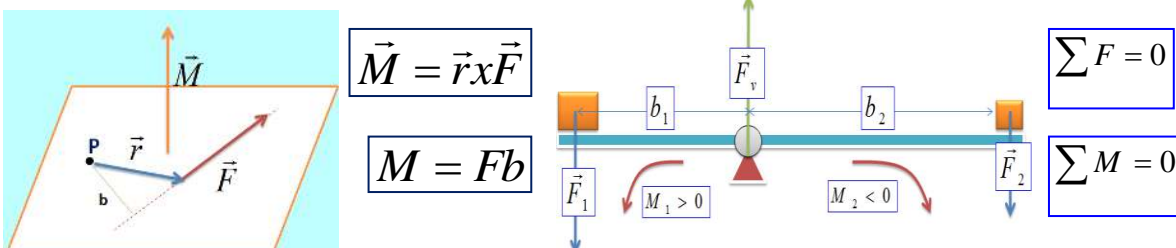
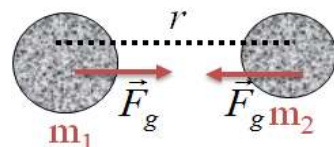
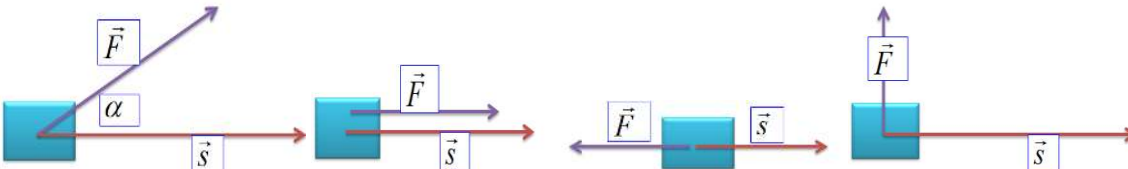
VETTORI E FORZE

Prodotto scalare-vettore	
Somma di vettori	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Parallelogramma</p>  </div> <div style="text-align: center;"> <p>PUNTA-CODA</p>  </div> </div>
Differenza di vettori	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>PUNTA-PUNTA</p>  </div> <div style="text-align: center;">  </div> </div>
Prodotto scalare	$\vec{a} \cdot \vec{b} = ab \cos \alpha$
Prodotto vettoriale	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> $\vec{a} \times \vec{b} = ab \sin \alpha$ </div> </div>
Forza peso	$\vec{p} = m\vec{g} \quad g = 9,8 \frac{m}{s^2}$
Forze d'attrito	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  <p>Radente</p> </div> <div style="width: 30%; text-align: center;"> $F_a = k \cdot N$   </div> <div style="width: 30%;">  <p>Volvente</p> $F_a = k \cdot \frac{N}{r}$ <p>Viscoso</p> $\vec{F}_a = -k \cdot \vec{v}$ <p>se v è grande:</p> $F_a = -k \cdot v^2$ </div> </div>
Forza elastica	<p>Legge di Hooke</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> $\vec{F}_e = -k\vec{s}$ </div> </div>

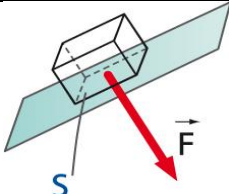
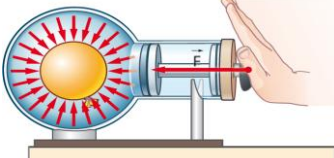
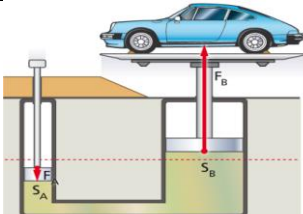
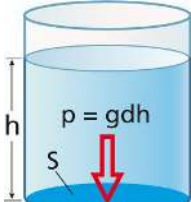
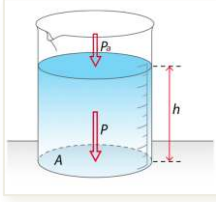


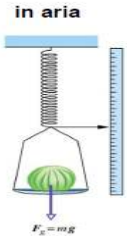
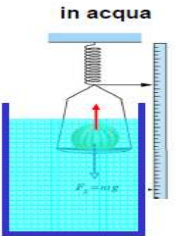
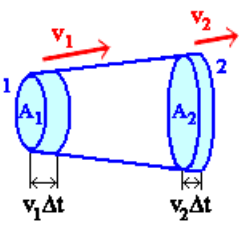
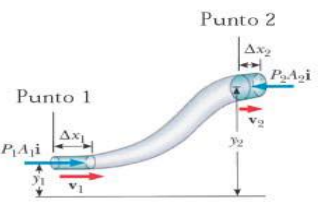
CINEMATICA

Velocità e Accelerazione	<p>Velocità media Accelerazione media</p> $v_m = \frac{s_2 - s_1}{\Delta t} = \frac{\Delta s}{\Delta t} \quad a_m = \frac{v_2 - v_1}{\Delta t} = \frac{\Delta v}{\Delta t}$ <p style="font-size: small; text-align: center;">Velocità istantanea $\Delta t \rightarrow 0$ Accelerazione istantanea $\Delta t \rightarrow 0$</p>																											
Leggi orarie del Moto Rettilineo Uniforme	 <div style="display: flex; justify-content: center; gap: 20px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px;">$a(t) = 0$</div> <div style="border: 1px solid black; padding: 5px;">$v(t) = \text{cost}$</div> <div style="border: 1px solid black; padding: 5px;">$s(t) = s_0 + v t$</div> </div> <div style="display: flex; justify-content: center; margin-top: 10px;">    </div>																											
Leggi orarie del Moto Uniformemente Accelerato	 <div style="display: flex; justify-content: center; gap: 20px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px;">$a = \text{cost}$</div> <div style="border: 1px solid black; padding: 5px;">$v = v_0 + a t$</div> <div style="border: 1px solid black; padding: 5px;">$s = s_0 + v_0 t + \frac{1}{2} a t^2$</div> </div> <div style="display: flex; justify-content: center; margin-top: 10px;">    </div> <div style="text-align: right; color: red; margin-top: 10px;">$v^2 - v_0^2 = 2a\Delta s$</div>																											
Moto verticale	<p style="color: red;">Sistema di riferimento orientato verso l'alto</p> <div style="display: flex; justify-content: center; gap: 20px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px;">$g = 9,81 \frac{m}{s^2}$</div> <div style="border: 1px solid black; padding: 5px;">$v = v_0 - g t$</div> <div style="border: 1px solid black; padding: 5px;">$y = y_0 + v_0 t - \frac{1}{2} g t^2$</div> </div>																											
Moto curvilineo																												
Moto circolare uniforme	 <div style="display: flex; justify-content: center; gap: 20px; margin-top: 10px;"> <div style="text-align: center;">$f = \frac{1}{T}$</div> <div style="text-align: center;">$v = \frac{2\pi r}{T}$</div> <div style="text-align: center;">$a = \frac{v^2}{r}$</div> </div> <div style="display: flex; justify-content: center; gap: 20px; margin-top: 10px;"> <div style="text-align: center;">$\omega = \frac{2\pi}{T}$</div> <div style="text-align: center;">$v = \omega r$</div> <div style="text-align: center;">$a = \omega^2 r$</div> </div>																											
Moto Armonico Semplice	 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> $s = r \cos(\omega t)$ </div> <div style="text-align: center;"> $v = \omega r \sin(\omega t)$ </div> <div style="text-align: center;"> $a = \omega^2 r \cos(\omega t)$ $a = -\omega^2 x$ </div> </div>																											
Unità di misura	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 20%;">GRANDEZZA</th> <th style="width: 20%;">SI (MKS)</th> <th style="width: 20%;">CGS</th> <th style="width: 20%;">PRATICO</th> </tr> </thead> <tbody> <tr> <td rowspan="2">VELOCITA'</td> <td>m/s</td> <td>cm/s</td> <td rowspan="2">m/s</td> </tr> <tr> <td>1 m/s = (1km/h)/3,6 1 m/s = 100 cm/s</td> <td>1 cm/s = 10⁻² m/s</td> </tr> <tr> <td rowspan="2">ACCELERAZIONE</td> <td>m/s²</td> <td>cm/s²</td> <td rowspan="2">m/s²</td> </tr> <tr> <td>1 m/s² = 100 cm/s²</td> <td>1 cm/s² = 10⁻² cm/s²</td> </tr> <tr> <td>VELOCITA' ANGOLARE</td> <td>rad/s</td> <td>rad/s</td> <td>rad/s</td> </tr> <tr> <td rowspan="2">FREQUENZA</td> <td>1 hz</td> <td>1 hz</td> <td>1 hz</td> </tr> <tr> <td>1 hz = 1s⁻¹</td> <td>1 hz = 1s⁻¹</td> <td>1 hz = 1s⁻¹</td> </tr> </tbody> </table>	GRANDEZZA	SI (MKS)	CGS	PRATICO	VELOCITA'	m/s	cm/s	m/s	1 m/s = (1km/h)/3,6 1 m/s = 100 cm/s	1 cm/s = 10 ⁻² m/s	ACCELERAZIONE	m/s ²	cm/s ²	m/s ²	1 m/s ² = 100 cm/s ²	1 cm/s ² = 10 ⁻² cm/s ²	VELOCITA' ANGOLARE	rad/s	rad/s	rad/s	FREQUENZA	1 hz	1 hz	1 hz	1 hz = 1s ⁻¹	1 hz = 1s ⁻¹	1 hz = 1s ⁻¹
GRANDEZZA	SI (MKS)	CGS	PRATICO																									
VELOCITA'	m/s	cm/s	m/s																									
	1 m/s = (1km/h)/3,6 1 m/s = 100 cm/s	1 cm/s = 10 ⁻² m/s																										
ACCELERAZIONE	m/s ²	cm/s ²	m/s ²																									
	1 m/s ² = 100 cm/s ²	1 cm/s ² = 10 ⁻² cm/s ²																										
VELOCITA' ANGOLARE	rad/s	rad/s	rad/s																									
FREQUENZA	1 hz	1 hz	1 hz																									
	1 hz = 1s ⁻¹	1 hz = 1s ⁻¹	1 hz = 1s ⁻¹																									

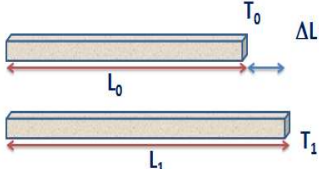
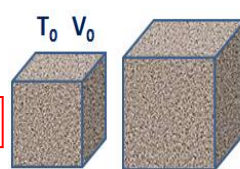
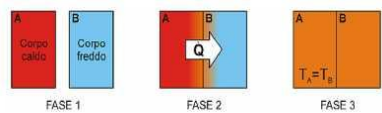

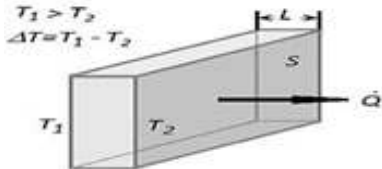

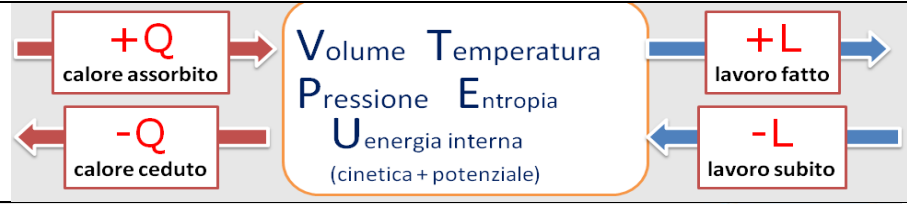


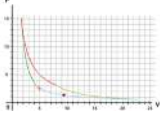
DINAMICA

Principi della Dinamica	 <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid red; padding: 2px;">$F = 0$ $a = 0$</div> <div style="border: 1px solid red; padding: 2px;">$\vec{F} = m\vec{a}$</div> <div style="border: 1px solid red; padding: 2px;">$\vec{F}_1 = -\vec{F}$</div> </div>																								
Momento di una forza Equilibrio di un corpo rigido	 <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$\vec{M} = \vec{r} \times \vec{F}$</div> <div style="border: 1px solid blue; padding: 2px;">$M = Fb$</div> <div style="border: 1px solid blue; padding: 2px;">$\sum F = 0$</div> <div style="border: 1px solid blue; padding: 2px;">$\sum M = 0$</div> </div>																								
Legge di attrazione gravitazionale	 <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$F_g = G \frac{m_1 m_2}{r^2}$</div> <div style="border: 1px solid blue; padding: 2px;">$G = 6,67 \cdot 10^{-11} \frac{Nm^2}{kg^2}$</div> </div>																								
Lavoro	 <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$L = \vec{F} \cdot \vec{s} = Fs \cos \alpha$</div> <div style="border: 1px solid blue; padding: 2px;">$L = F \cdot s$</div> <div style="border: 1px solid blue; padding: 2px;">$L = -F \cdot s$</div> <div style="border: 1px solid blue; padding: 2px;">$L = 0$</div> </div>																								
Potenza	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$P = \frac{L}{t}$</div> <div style="border: 1px solid blue; padding: 2px;">$P = F \cdot v$</div> </div>																								
Energia Cinetica	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$E_c = \frac{1}{2} mv^2$</div> <div style="text-align: center; color: red;">Teorema dell'Energia Cinetica</div> <div style="border: 1px solid blue; padding: 2px;">$L = E_{c2} - E_{c1} = \frac{1}{2} mv_2^2 - \frac{1}{2} mv_1^2$</div> </div>																								
Energia Potenziale	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 30%;">FORZA CONSERVATIVA</td> <td>ENERGIA POTENZIALE U</td> </tr> <tr> <td>FORZA PESO</td> <td>$U = mgh$</td> </tr> <tr> <td>FORZA GRAVITAZIONALE</td> <td>$U = -G \frac{Mm}{r}$</td> </tr> <tr> <td>FORZA ELETTROSTATICA</td> <td>$U = \frac{1}{4\pi\epsilon} \frac{Qq}{r}$</td> </tr> <tr> <td>FORZA ELASTICA</td> <td>$U = \frac{1}{2} kx^2$</td> </tr> </table> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 1px solid blue; padding: 2px;">$L = U_1 - U_2$</div> <div style="text-align: center; color: red;">Principio di conservazione dell'ENERGIA MECCANICA</div> <div style="border: 1px solid blue; padding: 2px;">$U + E_c = cost$</div> </div>	FORZA CONSERVATIVA	ENERGIA POTENZIALE U	FORZA PESO	$U = mgh$	FORZA GRAVITAZIONALE	$U = -G \frac{Mm}{r}$	FORZA ELETTROSTATICA	$U = \frac{1}{4\pi\epsilon} \frac{Qq}{r}$	FORZA ELASTICA	$U = \frac{1}{2} kx^2$														
FORZA CONSERVATIVA	ENERGIA POTENZIALE U																								
FORZA PESO	$U = mgh$																								
FORZA GRAVITAZIONALE	$U = -G \frac{Mm}{r}$																								
FORZA ELETTROSTATICA	$U = \frac{1}{4\pi\epsilon} \frac{Qq}{r}$																								
FORZA ELASTICA	$U = \frac{1}{2} kx^2$																								
Impulso e Quantità di Moto	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$\vec{I} = \vec{F} \cdot \Delta t$</div> <div style="border: 1px solid blue; padding: 2px;">$\vec{q} = m \cdot \vec{v}$</div> <div style="border: 1px solid blue; padding: 2px;">$\vec{I} = \Delta \vec{q}$</div> <div style="text-align: center; color: red;">Principio di conservazione di q (nei sistemi isolati e negli urti)</div> <div style="border: 1px solid blue; padding: 2px;">$\vec{q}_{tot} = cost$</div> </div>																								
Unità di misura	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;">GRANDEZZA</th> <th style="width: 25%;">SI (MKS)</th> <th style="width: 25%;">CGS</th> <th style="width: 25%;">PRATICO</th> </tr> </thead> <tbody> <tr> <td>FORZA</td> <td>N (=kg·m/s²) 1 N = 10⁵ dine 1 N = 9,8 kgp</td> <td>dine (=g·cm/s²) 1 dine = 10⁻⁵ N</td> <td>kgp (fondamentale)</td> </tr> <tr> <td>MOMENTO DI UNA FORZA</td> <td>N·m</td> <td>dine·cm</td> <td>kgp·m</td> </tr> <tr> <td>LAVORO - ENERGIA</td> <td>J (=N·m) 1 J = 10⁷ Erg</td> <td>Erg (=dine·cm) 1 Erg = 10⁻⁷ J</td> <td>kgp·m</td> </tr> <tr> <td>POTENZA</td> <td>W (=J/s)</td> <td>Erg / s</td> <td>kgp·m/s</td> </tr> <tr> <td>IMPULSO E QUANTITA' DI MOTO</td> <td>N·s = kg·m/s</td> <td>dine·s = g·cm/s</td> <td></td> </tr> </tbody> </table>	GRANDEZZA	SI (MKS)	CGS	PRATICO	FORZA	N (=kg·m/s ²) 1 N = 10 ⁵ dine 1 N = 9,8 kgp	dine (=g·cm/s ²) 1 dine = 10 ⁻⁵ N	kgp (fondamentale)	MOMENTO DI UNA FORZA	N·m	dine·cm	kgp·m	LAVORO - ENERGIA	J (=N·m) 1 J = 10 ⁷ Erg	Erg (=dine·cm) 1 Erg = 10 ⁻⁷ J	kgp·m	POTENZA	W (=J/s)	Erg / s	kgp·m/s	IMPULSO E QUANTITA' DI MOTO	N·s = kg·m/s	dine·s = g·cm/s	
GRANDEZZA	SI (MKS)	CGS	PRATICO																						
FORZA	N (=kg·m/s ²) 1 N = 10 ⁵ dine 1 N = 9,8 kgp	dine (=g·cm/s ²) 1 dine = 10 ⁻⁵ N	kgp (fondamentale)																						
MOMENTO DI UNA FORZA	N·m	dine·cm	kgp·m																						
LAVORO - ENERGIA	J (=N·m) 1 J = 10 ⁷ Erg	Erg (=dine·cm) 1 Erg = 10 ⁻⁷ J	kgp·m																						
POTENZA	W (=J/s)	Erg / s	kgp·m/s																						
IMPULSO E QUANTITA' DI MOTO	N·s = kg·m/s	dine·s = g·cm/s																							

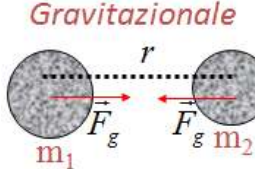
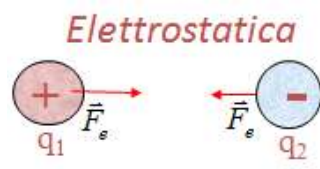
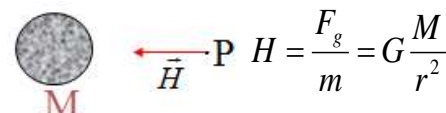
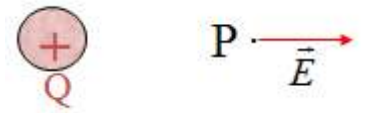
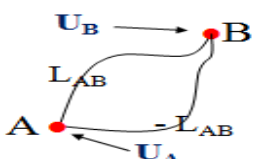
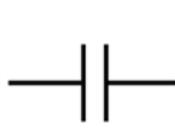
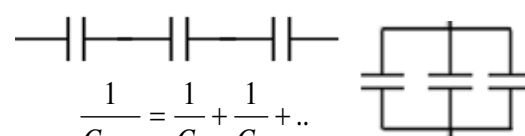
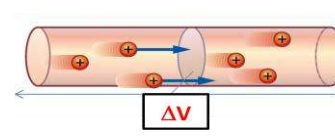

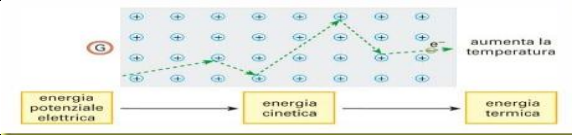
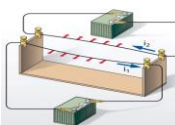
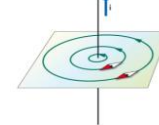
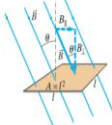
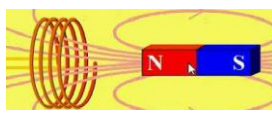
FLUIDI

<p>Densità Peso Specifico Pressione</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 5px;">$d = \frac{m}{V}$</div> <div style="border: 1px solid blue; padding: 5px;">$p_s = \frac{p}{V} = \frac{mg}{V} = dg$</div> <div style="border: 1px solid blue; padding: 5px;">$m = dV$ $p = dgV$</div> <div style="text-align: center;">  </div> <div style="border: 1px solid blue; padding: 5px;">$P = \frac{F}{S}$</div> </div>															
<p>Principio di Pascal e torchio idraulico</p>	<div style="display: flex; justify-content: space-around; align-items: center;">   <div style="border: 1px solid blue; padding: 5px;">$\frac{F_A}{S_A} = \frac{F_B}{S_B}$</div> </div>															
<p>Legge di Stevino (generalizzata)</p>	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid blue; padding: 5px;">$P = dgh$</div>  <div style="border: 1px solid blue; padding: 5px;">$P = dgh + p_a$</div> </div>															
<p>Principio di Archimede Galleggiamento</p>	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid blue; padding: 5px;">$S_A = d_{liquido} g V_{immerso}$</div>  <div style="border: 1px solid blue; padding: 5px;">$\frac{V_i}{V} = \frac{d_{corpo}}{d_{liquido}}$</div> </div>															
<p>Peso apparente</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>in aria</p>  </div> <div style="text-align: center;"> <p>in acqua</p>  </div> <div style="border: 1px solid blue; padding: 5px;">$p_{apparente} = p - s_A$</div> <div style="border: 1px solid blue; padding: 5px;">$= (d_{corpo} - d_{acqua}) g V$</div> </div>															
<p>Unità di misura della Pressione e conversioni</p>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 33%;">SI (MKS)</th> <th style="width: 33%;">CGS</th> <th style="width: 33%;">PRATICO</th> </tr> </thead> <tbody> <tr> <td>Pascal (Pa) [= N/m² = kg/(m·s²)]</td> <td>Baria (Ba) [= dine/cm² = g/(cm·s²)]</td> <td>kgp / m² [= N/m² = kg/(m·s²)]</td> </tr> <tr style="border: 2px solid red;"> <td>1 torr = pressione di 1 mm di Hg</td> <td>1 atm = 1,01 · 10⁵ Pa = 760 torr</td> <td></td> </tr> <tr style="border: 2px solid red;"> <td>1 bar = 10⁵ Pa = 1 MBa</td> <td>1 mbar = 10² Pa = 1 hPa = 1 kBa</td> <td></td> </tr> <tr style="border: 2px solid red;"> <td>1 Pa = 10⁻⁵ bar = 10 Ba = 0,99 · 10⁻⁵ atm = 9,8 kg_p/m²</td> <td>1 Ba = 10⁻¹ Pa = 10⁻⁶ bar</td> <td></td> </tr> </tbody> </table>	SI (MKS)	CGS	PRATICO	Pascal (Pa) [= N/m ² = kg/(m·s ²)]	Baria (Ba) [= dine/cm ² = g/(cm·s ²)]	kgp / m² [= N/m ² = kg/(m·s ²)]	1 torr = pressione di 1 mm di Hg	1 atm = 1,01 · 10 ⁵ Pa = 760 torr		1 bar = 10 ⁵ Pa = 1 MBa	1 mbar = 10 ² Pa = 1 hPa = 1 kBa		1 Pa = 10 ⁻⁵ bar = 10 Ba = 0,99 · 10 ⁻⁵ atm = 9,8 kg _p /m ²	1 Ba = 10 ⁻¹ Pa = 10 ⁻⁶ bar	
SI (MKS)	CGS	PRATICO														
Pascal (Pa) [= N/m ² = kg/(m·s ²)]	Baria (Ba) [= dine/cm ² = g/(cm·s ²)]	kgp / m² [= N/m ² = kg/(m·s ²)]														
1 torr = pressione di 1 mm di Hg	1 atm = 1,01 · 10 ⁵ Pa = 760 torr															
1 bar = 10 ⁵ Pa = 1 MBa	1 mbar = 10 ² Pa = 1 hPa = 1 kBa															
1 Pa = 10 ⁻⁵ bar = 10 Ba = 0,99 · 10 ⁻⁵ atm = 9,8 kg _p /m ²	1 Ba = 10 ⁻¹ Pa = 10 ⁻⁶ bar															
<p>Portata ed equazione di continuità (Fluidi in moto)</p>	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid blue; padding: 5px;">$Po = \frac{\Delta V}{t} = S \cdot v \left[\frac{m^3}{s} \right]$</div> <div style="border: 1px solid blue; padding: 5px;">$Po_1 = Po_2 \rightarrow S_1 V_1 = S_2 V_2$</div> </div>															
<p>Teorema di Bernoulli</p>	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid blue; padding: 5px;">$P + \frac{1}{2} dv^2 + dgh = cost$</div> </div>															

TERMOLOGIA E TERMODINAMICA

Temperatura	$T = t + 273,15 \text{ K}$ $^{\circ}t = T - 273,15 \text{ }^{\circ}\text{C}$	
Dilatazione	 $\Delta L = L_1 - L_0$ $\Delta L = L_0 \lambda \Delta T$ $L = L_0 (1 + \lambda \Delta T)$	 $\Delta V = V_1 - V_0$ $\alpha = 3\lambda$ $T_1 \Delta V = V_0 \alpha \Delta T$ $V = V_0 (1 + \alpha \Delta T)$
Calore		$Q = mc(t_f - t_i) = mc\Delta t$ 1 cal = 4,186 J
Calorimetro		$c_2 = \frac{c_1 m_1 (T_e - T_1)}{m_2 (T_2 - T_e)}$ $T_e = \frac{m_1 c_1 T_1 + m_2 c_2 T_2}{m_1 T_1 + m_2 T_2}$
Conduzione		$\frac{Q}{\text{tempo}} = \lambda \frac{S \cdot \Delta T}{L}$
Passaggi di stato		Calore latente $Q = mL$
Leggi dei Gas	P = cost $V_t = V_0 (1 + \alpha t)$ $\frac{V}{T} = k$ V = cost $P_t = P_0 (1 + \alpha t)$ $\frac{P}{T} = k$ $\alpha = \frac{1}{273} \text{ }^{\circ}\text{C}^{-1}$ T = cost $PV = k$ Equazione di stato $PV = nRT$ $R = 8,314 \frac{\text{J}}{\text{molK}}$	
Teoria cinetica dei gas	$Ec_{\text{media molecola}} = \frac{3}{2} kT$ $k = 1,38 \cdot 10^{-23} \frac{\text{J}}{\text{K}}$ $Ec_{\text{media mol}} = \frac{3}{2} nRT$	
Sistema termodinamico		PRIMO PRINCIPIO DELLA TERMODINAMICA $\Delta U = Q - L$
Macchina termica		RENDIMENTO $\eta = \frac{L}{Q_1} = \frac{Q_1 - Q_2}{Q_1} = 1 - \frac{Q_2}{Q_1}$
Secondo principio della Termodinamica		
Teorema di Carnot		$\eta_{rev} = 1 - \frac{T_2}{T_1}$

ELETTROMAGNETISMO

FORZE GRAVITAZIONALE ED ELETTRICA	<p><i>Gravitazionale</i></p>  $F_g = G \frac{m_1 m_2}{r^2}$ <p><i>Elettrostatica</i></p>  $F_e = K \frac{q_1 q_2}{r^2}$																																	
CAMPI GRAVITAZIONALE ED ELETTRICO	 $H = \frac{F_g}{m} = G \frac{M}{r^2}$  $E = \frac{F_e}{q} = K \frac{Q}{r^2} = \frac{1}{4\pi\epsilon} \frac{Q}{r^2}$																																	
ENERGIA POTENZIALE / POTENZIALE	 $L_{AB} = U_A - U_B$ $U_P = K \frac{Qq}{r_p}$ $V(P) = \frac{U_P}{q}$ $V(P) = K \frac{Q}{r}$ <div style="border: 1px solid red; padding: 2px; display: inline-block;">$L_{AB} = -q\Delta V_{BA}$</div> $eV = e \cdot V$																																	
CONDENSATORI	 $C = \frac{Q}{\Delta V} = \epsilon \frac{A}{d}$  $\frac{1}{C_{TOT}} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$ $C_{tot} = C_1 + C_2 + \dots$																																	
CORRENTE ELETTRICA / LEGGI DI OHM RESISTENZA	 <div style="border: 1px solid red; padding: 2px; display: inline-block;">$i = \frac{\Delta q}{\Delta t}$</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">$\frac{\Delta V}{i} = R$</div> $R = \rho \frac{l}{A}$ $\rho = \rho_0(1 + \alpha t)$  $R_{tot} = R_1 + R_2 + \dots$ $\frac{1}{R_{tot}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$																																	
ENERGIA ELETTRICA	 <div style="border: 1px solid red; padding: 5px; display: inline-block;"> $P = i \cdot \Delta V = i^2 R = \frac{(\Delta V)^2}{R}$ </div>																																	
MAGNETISMO	 $F = \frac{\mu_0}{2\pi} \frac{i_1 i_2}{d} l$  $B = \frac{\mu_0 i}{2\pi R}$ $\vec{F} = q\vec{v} \wedge \vec{B}$ $\vec{F} = i\vec{L} \wedge \vec{B}$																																	
FLUSSO / INDUZIONE ELETTROMAGNETICA	 $\Phi = \vec{B} \cdot \vec{A} = BA \cos \theta$  $fem = - \frac{\Delta \Phi}{\Delta t}$																																	
UNITA' DI MISURA	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #008080; color: white;"> <th>GRANDEZZA</th> <th>SI (MKS)</th> <th>CGS</th> </tr> </thead> <tbody> <tr> <td>INTENSITA' DI CORRENTE</td> <td>AMPERE (A)</td> <td>statC/s</td> </tr> <tr> <td>CARICA ELETTRICA</td> <td>COULOMB (C) = V·s</td> <td>statC o Franklin = 3,3356 · 10⁻¹⁰ C</td> </tr> <tr> <td>CAMPO GRAVITAZIONALE</td> <td>m/s²</td> <td>cm/s²</td> </tr> <tr> <td>CAMPO ELETTRICO</td> <td>N/C</td> <td>dyne/statC</td> </tr> <tr> <td>POTENZIALE ELETTRICO</td> <td>VOLT (V) = J/C</td> <td>statV ~ 300 V</td> </tr> <tr> <td>CAPACITA' ELETTRICA</td> <td>FARAD (F) = C/V</td> <td></td> </tr> <tr> <td>RESISTENZA ELETTRICA</td> <td>OHM (Ω) = V/A</td> <td></td> </tr> <tr> <td>RESISTIVITA' ELETTRICA</td> <td>Ω·m</td> <td></td> </tr> <tr> <td>CAMPO MAGNETICO</td> <td>TESLA (T) = N/(A·m)</td> <td>GAUSS (G) = 10⁻⁴ T</td> </tr> <tr> <td>FLUSSO MAGNETICO</td> <td>WEBER (Wb) = T·m²</td> <td>MAXWELL (M) = G·cm²</td> </tr> </tbody> </table>	GRANDEZZA	SI (MKS)	CGS	INTENSITA' DI CORRENTE	AMPERE (A)	statC/s	CARICA ELETTRICA	COULOMB (C) = V·s	statC o Franklin = 3,3356 · 10⁻¹⁰ C	CAMPO GRAVITAZIONALE	m/s²	cm/s²	CAMPO ELETTRICO	N/C	dyne/statC	POTENZIALE ELETTRICO	VOLT (V) = J/C	statV ~ 300 V	CAPACITA' ELETTRICA	FARAD (F) = C/V		RESISTENZA ELETTRICA	OHM (Ω) = V/A		RESISTIVITA' ELETTRICA	Ω·m		CAMPO MAGNETICO	TESLA (T) = N/(A·m)	GAUSS (G) = 10⁻⁴ T	FLUSSO MAGNETICO	WEBER (Wb) = T·m²	MAXWELL (M) = G·cm²
GRANDEZZA	SI (MKS)	CGS																																
INTENSITA' DI CORRENTE	AMPERE (A)	statC/s																																
CARICA ELETTRICA	COULOMB (C) = V·s	statC o Franklin = 3,3356 · 10⁻¹⁰ C																																
CAMPO GRAVITAZIONALE	m/s²	cm/s²																																
CAMPO ELETTRICO	N/C	dyne/statC																																
POTENZIALE ELETTRICO	VOLT (V) = J/C	statV ~ 300 V																																
CAPACITA' ELETTRICA	FARAD (F) = C/V																																	
RESISTENZA ELETTRICA	OHM (Ω) = V/A																																	
RESISTIVITA' ELETTRICA	Ω·m																																	
CAMPO MAGNETICO	TESLA (T) = N/(A·m)	GAUSS (G) = 10⁻⁴ T																																
FLUSSO MAGNETICO	WEBER (Wb) = T·m²	MAXWELL (M) = G·cm²																																