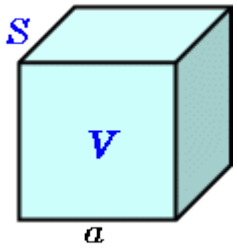
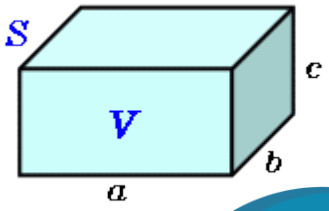
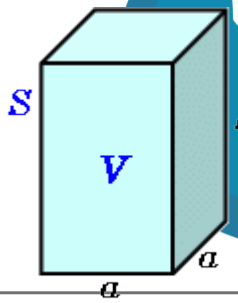
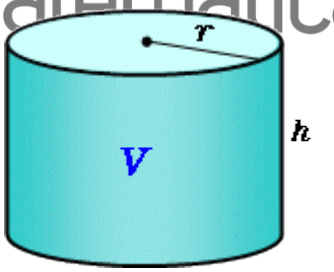
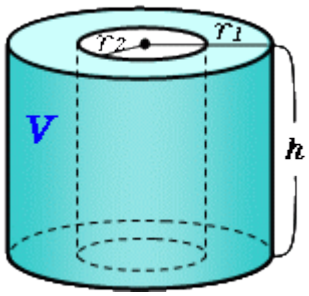
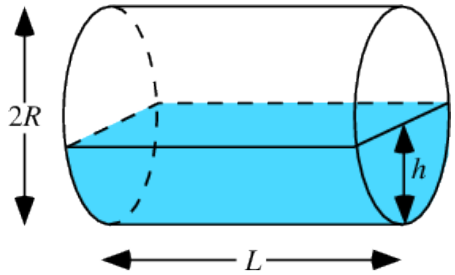
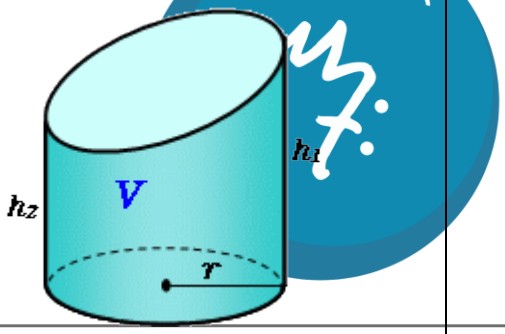
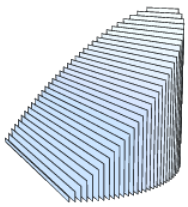
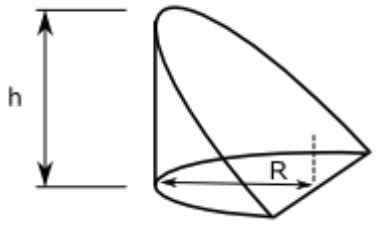
Geometria II

Professor Alessandro Monteiro

Sólido	Figura	Fórmulas
Cubo		*1) Área da base:* $A_B = a^2$ *2) Volume:* $V = a^3$ *3) Área Lateral:* $A_L = 4a^2$ *4) Área Total:* $S = 6a^2$ *5) Diagonal da face:* $f = a\sqrt{2}$ *6) Diagonal do cubo:* $D = a\sqrt{3}$
Paralelepípedo		*1) Área da base:* $A_B = ab$ *2) Volume:* $V = abc$ *3) Área Lateral:* $A_L = 2(ab + bc)$ *4) Área Total:* $S = 2(ab + ac + bc)$ *5) Diagonal:* $D = \sqrt{a^2 + b^2 + c^2}$
Prisma Quadrangular		*1) Área da base:* $A_B = a^2$ *2) Volume:* $V = a^2 h$ *3) Área Lateral:* $A_L = 4ah$ *4) Área Total:* $S = 2a(a + 2h)$ *5) Diagonal:* $D = \sqrt{2a^2 + h^2}$
Cilindro		*1) Área da base:* $A_B = \pi r^2$ *2) Volume:* $V = \pi r^2 h$ *3 Área Lateral:* $A_L = 2\pi rh$ *4) Área Total:* $S = 2\pi r(h + r)$ *5) Diagonal:* $D = \sqrt{2a^2 + h^2}$
Cilindro Oco (Tubo)		*1) Área da base:* $A_B = \pi\left(r_1^2 - r_2^2\right)$ *2) Volume:* $V = \pi\left(r_1^2 - r_2^2\right) \cdot h$ *3 Área Lateral:* $A_L = 2\pi h(r_1 + r_2)$ *4) Área Total:* $S = 2A_B + A_L$

Cilindro Horinzontal		*1) Área do Segmento Circular:* $A_{SC} = r^2\left[\frac{\pi}{2} + arcsen\left(\frac{h-r}{r}\right) + (h-r)\sqrt{2rh-h^2}\right]$ *2) Volume:* $V = A_{sc} \cdot L$ *3) Área Superior:* $A_S = 2 \cdot L \cdot \sqrt{2rh-h^2}$ *4) Área Inferior:* $A_I = l \cdot L$ *5.1)* $l = 2 \cdot r \cdot \arccos\left(\frac{r-h}{r}\right)$, *quando* $h \le r$. *5.2)* $l = 2 \cdot r \cdot \left[\pi - \arccos\left(\frac{h-r}{r}\right)\right]$, *quando* $h>r$. *6) Área Total:* $S = 2 \cdot A_{SC} + A_S + A_I$
Tronco de Cilindro		*1) Área da base:* $A_B = \pi r^2$ *2) Volume:* $V = \pi r^2\left(\frac{h_1+h_2}{2}\right)$ *3) Área Lateral:* $A_L = \pi r(h_1+h_2)$ *4) Área Total:* $S = A_L + \pi r^2 + \pi r\sqrt{r^2+\left(\frac{h_1-h_2}{2}\right)^2}$
Cunha (Segmento) Cilindríca (o)	 	*1) Volume:* $V = \frac{2}{3}R^2h$ *2) Área Lateral:* $A_L = 2Rh$ *3) Área Total:* $S = 2Rh + \frac{\pi}{2}R^2 + \frac{\pi}{2}R\sqrt{R^2+h^2}$

Geometria II

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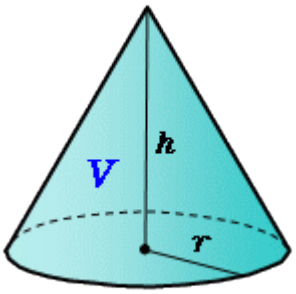
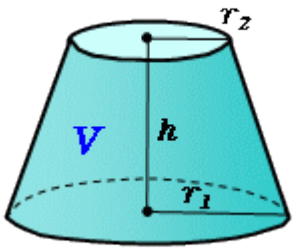
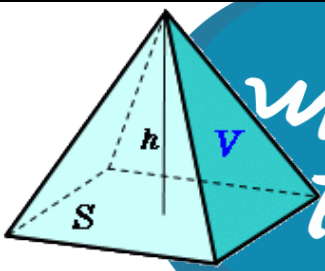
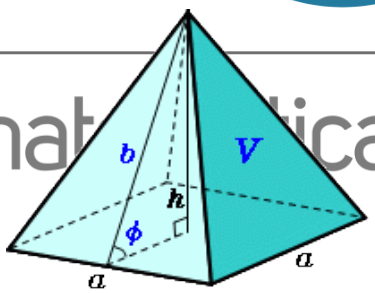
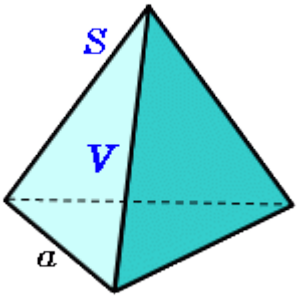
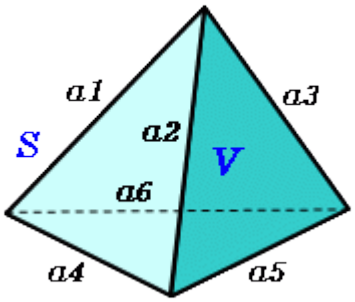
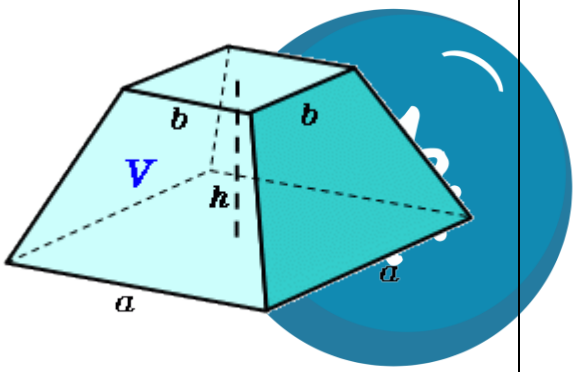
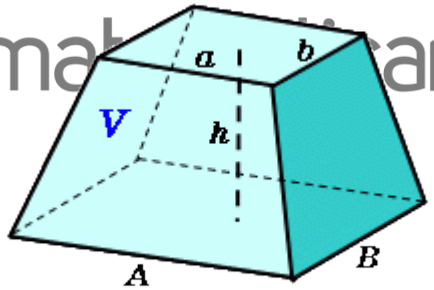
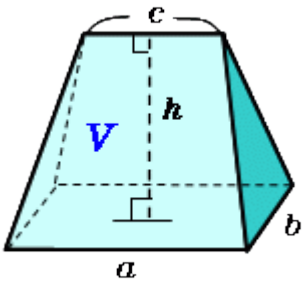
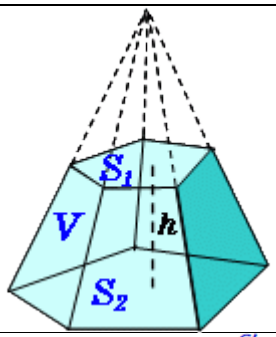
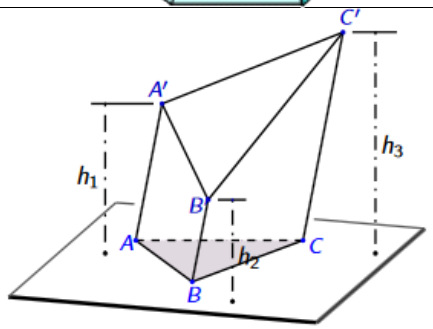
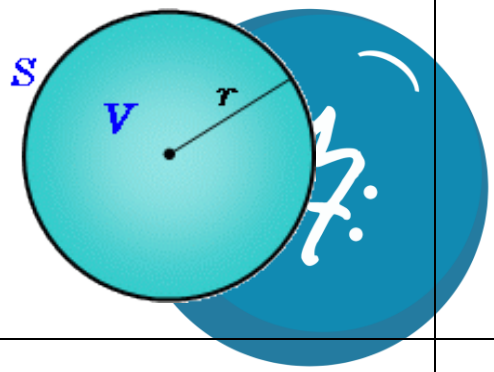
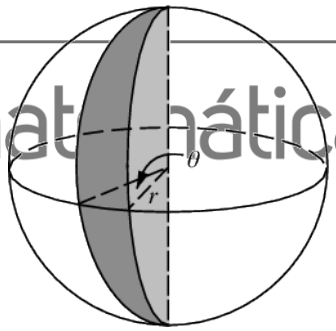
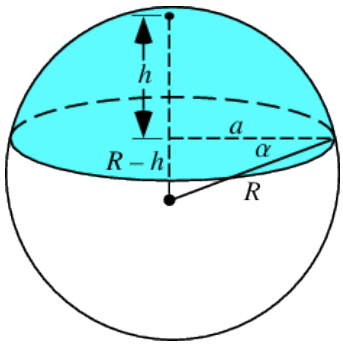
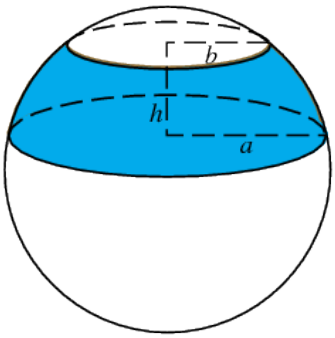
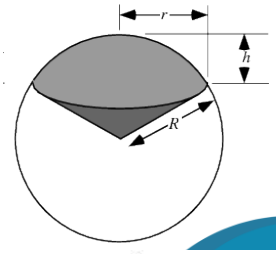
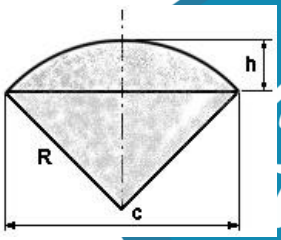
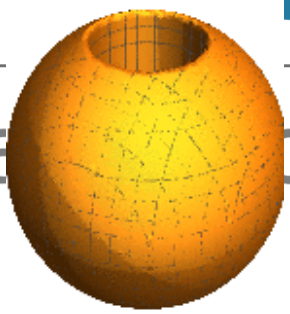
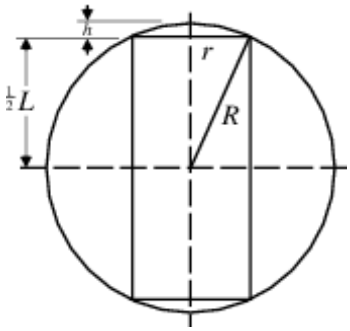
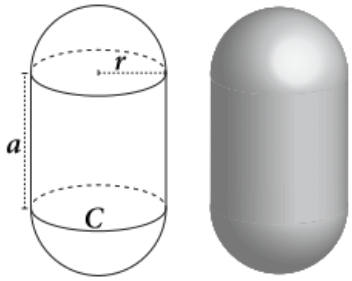
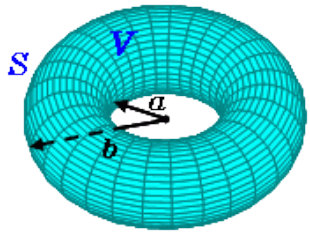
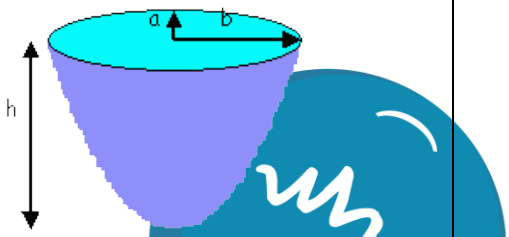
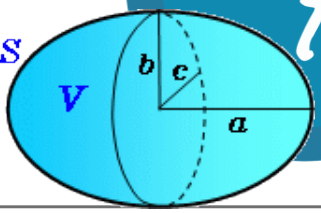
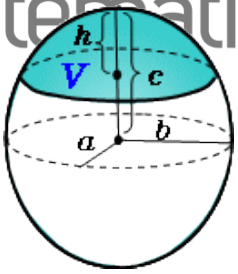
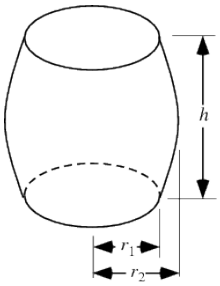
Cone		*1) Área da base:* $A_B = \pi r^2$ *2) Volume:* $V = \frac{1}{3}\pi r^2 h$ *3) Área Lateral:* $A_L = \pi r g$ *4) Área Total:* $S = \pi r(g + r)$ *5) geratriz:* $g = \sqrt{h^2 + r^2}$
Tronco de Cone		*1) Área da base:* $A_B = \pi r^2$ *2) Volume:* $V = \frac{1}{3}\pi h\left(r_1^2 + r_1 r_2 + r_2^2\right)$ *3) Área Lateral:* $A_L = \pi g(r_1 + r_2)$ *4) geratriz:* $g = \sqrt{(r_1 - r_2)^2 + h^2}$
Pirâmide		*1) Volume:* $V = \frac{1}{3}Sh$
Pirâmide Quadrangular		*1) Área da base:* $A_B = a^2$ *2) Volume:* $V = \frac{1}{3}a^2 h$ *3) Área Lateral:* $A_L = a\sqrt{4h^2 + a^2}$ *4) Área Total:* $S = A_L + a^2$ *5)Inclinação:* $\phi = arctg\left(\frac{2h}{a}\right)$
Tetraedro Regular		*1) Área da base:* $A_B = a^2\frac{\sqrt{3}}{4}$ *2) Volume:* $V = a^3\frac{\sqrt{2}}{12}$ *3) Área Lateral:* $A_L = 3a^2\frac{\sqrt{3}}{4}$ *4) Área Total:* $S = a^2\sqrt{3}$ *5) Altura:* $H = a\frac{\sqrt{6}}{3}$

Tetraedro		$V^2=\frac{1}{144}[a_1^2a_5^2(a_2^2+a_3^2+a_4^2+a_6^2-a_1^2-a_5^2)$ $+a_2^2a_6^2(a_1^2+a_3^2+a_4^2+a_5^2-a_2^2-a_6^2)$ $+a_3^2a_4^2(a_1^2+a_2^2+a_5^2+a_6^2-a_3^2-a_4^2)$ $-a_1^2a_2^2a_4^2-a_2^2a_3^2a_5^2-a_1^2a_3^2a_6^2-a_4^2a_5^2a_6^2]$ $S=\sqrt{s_1(s_1-a_1)(s_1-a_2)(s_1-a_4)}$ $+\sqrt{s_2(s_2-a_2)(s_2-a_3)(s_2-a_5)}$ $+\sqrt{s_3(s_3-a_3)(s_3-a_6)(s_3-a_1)}$ $+\sqrt{s_4(s_4-a_4)(s_4-a_5)(s_4-a_6)}$ $s1=\frac{a_1+a_2+a_4}{2},\ s2=\frac{a_2+a_3+a_5}{2}$ $s3=\frac{a_3+a_6+a_1}{2},\ s4=\frac{a_4+a_5+a_6}{2}$
Tronco de Pirâmide Quadrada		*1) Área da base:* $A_B=a^2$ *2) Volume:* $V=\frac{1}{3}h\left(a^2+ab+b^2\right)$ *3) Área Lateral:* $A_L=2(a+b)\sqrt{\left(\frac{a-b}{2}\right)^2+h^2}$ *4) Área Total:* $S=A_L+a^2+b^2$
Obelisco		*1) Área da base:* $A_B=AB$ *2) Volume:* $V=\frac{1}{6}h\left((2A+a)B+(2A+a)b\right)$ *3) Área Lateral:* $A_L=(a+A)x+(b+B)y$ *4) Área Total:* $S=A_L+ab+AB$
Cunha (Segmento) de Pirâmide Quadrangular		*1) Área da base:* $A_B=ab$ *2) Volume:* $V=\frac{1}{6}bh(2a+c)$ *3) Área Lateral:* $A_L=\frac{a+c}{2}\sqrt{4h^2+b^2}+b\sqrt{h^2+(a-c)^2}$ *4) Área Total:* $S=A_L+ab$

Tronco de Pirâmide		*1) Volume:* $V = \frac{1}{3}h\left(S_1 + \sqrt{S_1 S_2} + S_2\right)$
Tronco de Primas Triangular		*1) Volume:* $V = A_B\left(\frac{h_1 + h_2 + h_3}{3}\right)$
Esfera		*1) Volume:* $V = \frac{4}{3}\pi r^3$ *2) Área Total:* $S = 4\pi r^2$
Cunha Esférica		*1) Volume:* $V = \frac{2}{3}r^3\theta$ *2) Área do Fuso:* $A_F = 2r^2\theta$ *3) Área Total:* $S = A_F + \pi r^2$
Calota Esférica		*1) Volume:* $V = \frac{\pi h^2}{3}(3R - h) = \frac{\pi h}{6}\left(3a^2 + h^2\right)$ *2) Área Lateral:* $A_L = 2\pi Rh = \pi\left(a^2 + h^2\right)$ *3) Área Total:* $S = 2\pi Rh + \pi a^2$ *4) Raio:* $a = \sqrt{2Rh - h^2}$

Segmento Esférico		*1) Volume:* $V = \frac{1}{6}\pi h\left(3a^2 + 3b^2 + h^2\right)$ *2) Área Inferior:* $A_I = \pi a^2$ *3) Área Superior:* $A_S = \pi b^2$ *4) Área Total:* $S = 2\pi Rh$ *5) Raio:* $R = \sqrt{\frac{\left((a-b)^2 + h^2\right)\left((a+b)^2 + h^2\right)}{4h^2}}$
Setor Esférico	 	*1) Volume:* $V = \frac{2}{3}\pi R^2 h$ *2) Área Total:* $S = \pi R\left(2h + \frac{c}{2}\right)$
Anel Esférico	 	*1) Volume:* $V = \frac{1}{6}\pi L^3$

Capsula		1) *Volume:* $V = \pi r^2\left(\frac{4}{3}r + a\right)$ 2) *Área Total:* $S = 2\pi r(2r + a)$
Toro		1) *Volume:* $V = \frac{\pi^2}{4}(a+b)(b-a)^2$ 2) *Área Total:* $S = \pi^2(b^2 - a^2)$
Paraboloide		1) *Volume:* $V = \frac{1}{2}\pi abh$
Elipsoide		1) *Volume:* $V = \frac{4}{3}\pi abc$
Calota de Elipsoide		1) *Volume:* $V = \frac{\pi ab}{3c^2}h^2(3c - h)$ 2) *Área Total:* $S = \frac{\pi ab}{c^2}h(2c - h)$
Barril		1) *Volume:* $V = \frac{\pi h}{3}\left(2r_2^{\,2} + r_1^{\,2}\right)$