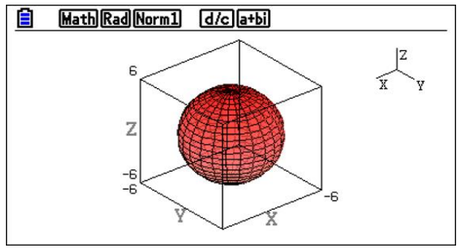
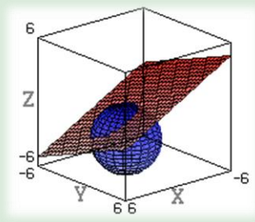
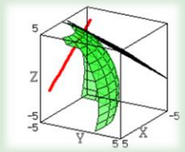
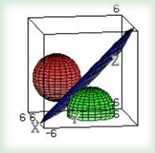
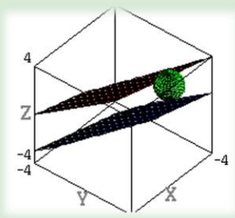
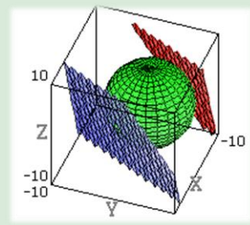
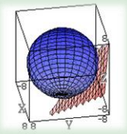
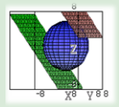
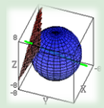
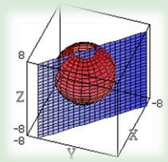
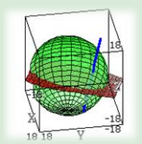
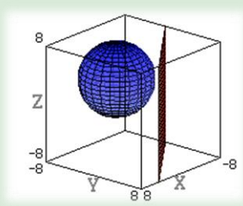
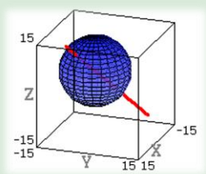
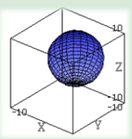
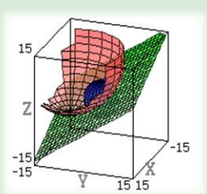
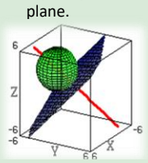
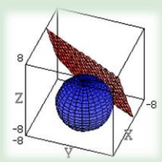
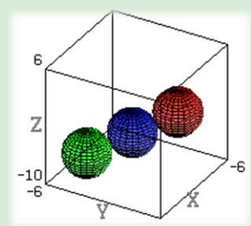
APRIL 2021-2022

APRIL

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUN.
				**1** Let the sphere be the equation: $E \equiv x^2 + y^2 + z^2 - 2x + 6z = 0$. Determine the coordinates of the centre and the radius measure. Check if the plan: $\Pi \equiv 3x - 2y + 6z + 1 = 0$ and the sphere are secant. Determine the radius of the intersecting circle of E, Π. Determine the centre of the intersection circle of E, Π.	**2** 	**3**
4 Find the equation of the sphere with centre C (3, -5, -2) tangent to the plane: $2x - y - 3z + 11 = 0$ 	**5** Find the equation of the sphere of radius 3, which is tangent to the plane $x + 2y + 2z + 3 = 0$ at the point A (1, 1, -3) 	**6** 	**7** **8** Determine the equation of the sphere that is tangent to the planes: $\Pi \equiv 6x - 3y - 2z - 35 = 0$ $\Omega \equiv 6x - 3y - 2z + 63 = 0$ knowing that the point M (5, -1, -1) is a point of tangency in one of the planes.		**9** Determine the equation of the plane tangent to the sphere $x^2+y^2+z^2=49$ at point M (6, -3, -2) 	**10**
11  Show that the plane $2x - 6y + 3z - 49 = 0$ is tangent to the sphere $x^2 + y^2 + z^2 = 49$ Calculate the coordinates of the point of tangency 	**12** Determine the equations of the planes tangent to the sphere $(x-3)^2 + (y+2)^2 + (z-1)^2 = 25$ parallel to plane $4x + 3z - 17 = 0$	**13** A sphere has its centre on the line $r \equiv \begin{cases} 2x + 4y - z - 7 = 0 \\ 4x + 5y + z - 14 = 0 \end{cases}$ and is tangent to the planes $\Pi \equiv x + 2y - 2z - 2 = 0$ $\Omega \equiv x + 2y - 2z + 4 = 0$ Determine its equation.	**14** Determine the equation of the circumference that passes through the points A (3, -1, -2), B (1,1, -2) and C (-1,3,0) 	**15** **16** Determine the relative position of the line $r \equiv \begin{cases} x = 2 - 2\alpha \\ y = -\frac{7}{2} + 3\alpha \\ z = -2 + \alpha \end{cases}$ and the sphere $E \equiv x^2 + y^2 + z^2 + x - 4y - 3z + \frac{1}{2} = 0$	**17**
18 Determine the equation of the sphere with centre O (2,3, -1) that intersects the line $s \equiv \begin{cases} 5x - 4y + 3z + 20 = 0 \\ 3x - 4y + z - 8 = 0 \end{cases}$  with a chord of length equal to 16.	**19** **20** In the sphere of equation $(x-1)^2 + (y+2)^2 + (x-3)^2 = 25$ determines the point M closest to the plane $\Pi \equiv 3x - 4y + 19 = 0$ and calculate the distance from point M to this plane. 		**21** **22** Find the shortest distance from point A (1, -1,3) to the sphere $E \equiv x^2 + y^2 + z^2 - 6x + 4y - 10z - 62 = 0$ At what point on the sphere is the shortest distance achieved? 	**23** Determine the equation of the sphere that passes through the points A (3,1, -3); B (-2,4,1); C (-5,0,0) and has the center in the plane: $\Pi \equiv 2x + y - z + 3 = 0$ 	**24**
25 **26** Let the spheres be equations: $E_1 \equiv x^2 + y^2 + z^2 = 25$ $E_2 \equiv x^2 + y^2 + z^2 - 10x + 15y - 25z = 0$ Prove that the two spheres are secant. Determine the plane that contains the intersection of the two spheres. Determine the centre and radius of the intersecting circle. 		**27** Prove that the point T (1,0,1) belongs to the plane: $\pi \equiv x - 2y + 2z = 3$ Determine the equation of the sphere that passes through the point P (1,0,5) and is tangent at T to the π plane. 	**28** Determine the equation of the plane tangent to the sphere: $(x-3)^2 + (y-1)^2 + (z+2)^2 = 24$ passing through point M (-1,3,0) 	**29** **30** Let the sphere: $x^2 + y^2 + z^2 - 6x - 4y + 8z + 20 = 0$ Find the sphere of equal radius, exterior tangent at point A (1,4, -3) of the sphere. Find the sphere of equal radius, exterior tangent at the point diametrically opposite to point A on the sphere. 	

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