3. Which of the points $P(6, 2, 3)$, $Q(-5, -1, 4)$, and $R(0, 3, 8)$ is closest to the xz-plane? Which point lies in the yz-plane?

7–8 Find the lengths of the sides of the triangle PQR. Is it a right triangle? Is it an isosceles triangle?

8. $P(2, -1, 0)$, $Q(4, 1, 1)$, $R(4, -5, 4)$

9. Determine whether the points lie on straight line.
(a) $A(2, 4, 2)$, $B(3, 7, -2)$, $C(1, 3, 3)$
(b) $D(0, -5, 5)$, $E(1, -2, 4)$, $F(3, 4, 2)$

10. Find the distance from $(3, 7, -5)$ to each of the following.
(a) The xy-plane
(b) The yz-plane
(c) The xz-plane
(d) The x-axis
(e) The y-axis
(f) The z-axis

11. Find an equation of the sphere with center $(1, -4, 3)$ and radius 5. What is the intersection of this sphere with the xz-plane?

15–18 Show that the equation represents a sphere, and find its center and radius.

16. $x^2 + y^2 + z^2 + 8x - 6y + 2z + 17 = 0$

20. Find an equation of a sphere if one of its diameters has endpoints $(2, 1, 4)$ and $(4, 3, 10)$.

23–32 Describe in words the region of $\mathbb{R}^3$ represented by the equation or inequality.

29. $x^2 + y^2 + z^2 \leqslant 3$

33–36 Write inequalities to describe the region.

35. The region consisting of all points between (but not on) the spheres of radius r and R centered at the origin, where $r < R$

For #35, use set notation to describe the region (which involves inequalities).