

- 1) Find the surface area of the part of the plane $z = 2 + 3x + 4y$ that lies above the rectangle $[0, 5] \times [1, 4]$.

$$15\sqrt{26}$$

- 2) Find the surface area of the part of the plane $2x + 5y + z = 10$ that lies inside the cylinder $x^2 + y^2 = 9$.

$$9\pi\sqrt{30}$$

- 3) Find the surface area of the part of the cylinder $y^2 + z^2 = 9$ that lies above the rectangle with vertices $(0, 0)$, $(4, 0)$, $(0, 2)$, $(4, 2)$.

$$12 \sin^{-1}\left(\frac{2}{3}\right)$$

- 4) Find the surface area of the part of the surface $z = xy$ that lies within the cylinder $x^2 + y^2 = 1$.

$$\frac{2\pi}{3}(2\sqrt{2}-1)$$

- 5) Find the surface area of the part of the sphere $x^2 + y^2 + z^2 = 4z$ that lies inside the paraboloid $z = x^2 + y^2$.

$$4\pi$$