```
> restart : with(LinearAlgebra) : with(VectorCalculus) :
> SetCoordinates(cartesian[r, theta, phi]) :
> v_1 := VectorField([diff(sin(theta)·cos(phi), theta), diff(sin(theta)·sin(phi),
      theta), diff(2·cos(theta), theta)])
```

$$v\_1 := (\cos(\theta)\cos(\phi))\bar{e}_r + (\cos(\theta)\sin(\phi))\bar{e}_\theta + (-2\sin(\theta))\bar{e}_\phi \quad (1)$$

```
> v_2 := VectorField([diff(sin(theta)·cos(phi), phi), diff(sin(theta)·sin(phi),
      phi), diff(2·cos(theta), phi)])
```

$$v\_2 := (-\sin(\theta)\sin(\phi))\bar{e}_r + (\sin(\theta)\cos(\phi))\bar{e}_\theta + (0)\bar{e}_\phi \quad (2)$$

```
> n := CrossProduct(v_1, v_2) :
> n_norm := sqrt(n[1]^2 + n[2]^2 + n[3]^2) :
> result := int(int(n_norm, theta = -Pi..Pi), phi = 0..2·Pi)
```

$$result := 4\pi + \frac{16\sqrt{3}\,\pi^2}{9} \quad (3)$$

```
> result_float := evalf(result)
```

$$result\_float := 42.95687068 \quad (4)$$

```
>
```