

Dot product tells you to find
the part of \vec{E} parallel to \hat{n}
(perpendicular to the surface)

The unit vector normal
to the surface

The amount of
charge in coulombs

Reminder that this
integral is over a
closed surface

\oint_S

\vec{E}

\cdot

\hat{n}

ds

$= \frac{q_{enc}}{\epsilon_0}$

Reminder that only
the enclosed charge
contributes

The electric
field in N/C

An increment of
surface area in m^2

The electric
permittivity
of the free space

Surface integral
(not a volume or a line integral)