$$C = \frac{k \cdot A}{d}$$

- where C is Capacitance in Farads
- k is Permittivity constant of the dielectric
- A is the Area of the plates in square metres
- d is Distance between the plates in metres

Capacitance **halves**

$$C \propto \frac{1}{d}$$

Inverse relationship

Capacitance **doubles**

$$C \propto A$$

Direct relationship

Yes it is, on the third row from the top. It should be written as

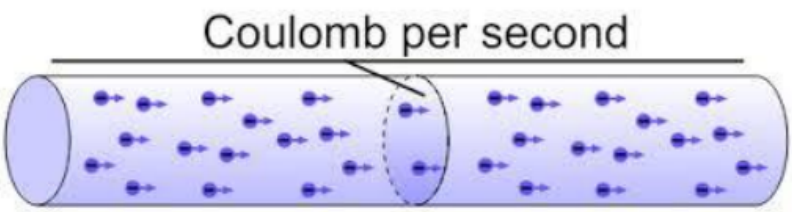
$$C = \frac{k \times A}{d}$$

and not with A as a subscript

The Coulomb is the quantity of electricity or charge:

$$Q = current \times time$$

and if one Coulomb of charge passes a point every second, 1 Amp of current is flowing. Coulomb is the charge from $6 \times 10^{18} electrons$ Q is not to be confused with Q as ameasure of selectiviity or magnification factor.



Yet another Quite Interesting fact, but this one *is* included in the syllabus, *and* in EX309…

We know that capacitors charge up when we apply voltage

'Stored' charge (also Q) is related to:

- Voltage (V) applied and Capacitance (C) of the capacitor
- Syllabus formula: Q = V x C

Formula on EX309 shows transposed version: C = Q / V

Capacitance (C) = Charge (Q) ÷ Voltage (V)

Sorry to bang on: *this may be Quite Interesting but it is of little practical use in an amateur radio context, other than to answer an exam question!*

First one is a 'basic concept' of electricity

Charge in a wire = Q = I x t

- In syllabus but not on EX309 formula sheet
- Used to derive meaning of the Ampere
  - If 1 Coulomb of charge passes in 1 second, then current = 1 Amp

Charge in (on?) a capacitor = Q = V x C

- In syllabus as Q = V x C
- But shown on EX309 as C = Q ÷ V

The 'several hours' allows adequate time for 5 time constants (Tau) to elapse and the capacitor to become fully charged.

EX309 formula with Q, C & V? = C = Q ÷ V

Transpose to Q = V x C (or use 4 answers)

$Q = 12 \times 22 \times 10^{-6}$

$= 2.64 \times 10^{-4}$

[ENG] = 264×10^{-6} = 264 micro coulombs