The Golden Table, a conceptual understanding

Risk Factor	Disease +	Disease −
+	A	B
−	C	D

Think of the following:

- those at risk (+ve for risk), are exposed. So, exposed group are those in the +ve risk row (A+B)
  exposed group = A + B
- those that are exposed can either have the disease (disease +ve, A) or not (disease -ve, B).
  exposed, w/ disease = A
  exposed, no disease = B
- those that aren't at risk (risk -ve) are not exposed to the risk factor. So they are in -ve risk row.
  non-exposed group = C+D
- there are those w/out being exposed to risk factor but still have disease (disease +ve), and others that aren't w/ disease (disease -ve)
  non-exposed, w/ disease = C
  non-exposed, w/out disease = D
- Calculating the Prevalence Rate: here, you want to find out how prevalent a disease is amongst those who are exposed to a risk (to ultimately find #1 risk factor).

$$PR = \frac{A \times 100}{A+B}$$

A × 100 → those exposed and have disease.
A + B → all those exposed to risk factor

the PR of total population is how prevalent disease is in a group, independent of the risk factor:

$$\frac{A+C}{A+B+C+D} = PR_{TOT}$$

The Golden Table, a practical example:

Smoking	Cardiovascular Disease [CVD] +	−
+	20	40
−	30	20

← smokers

Understanding the table:
- we have a total of 60 people smoking
  20 of them have CVD, 40 don't
- We have 50 people not smoking
  30 of them have CVD (for different reasons), 20 don't
- we have a total of 50 people w/ disease
  20 of them are smokers, 30 of them aren't
- we have a total of 60 people w/out CVD
  40 are smokers, 20 aren't

A. If this were a cross-sectional study:

PR of exposed group = $\frac{20}{20+60} * 100 = 25\%$

∴, for smokers, CVD is prevalent at a rate of 25%

PR of non-exposed = $\frac{30}{30+20} * 100 = 60\%$

PR of total population = $\frac{20+30}{20+40+30+50} = 45.45\%$

B. If a cohort/clinical trials:

$IR_E = \frac{20}{20+60} * 100 = 25\%$ for every 100 smokers, 25 of them have CVD.

$IR_{NE} = \frac{30}{30+20} * 100 = 50\%$ - 30 people have CVD w/out smoking
- 50% of non-smokers have CVD

$IR_{TOT} = \frac{20+30}{20+40+30+50} = 45\%$ 45% of population has CVD, whether smokers or not.

Risk Factor	Disease +	Disease −
+	A	B
−	C	D

but WATCH OUT! It may be written in a different order →

Risk Factor	Disease −	Disease +
−	D	C
+	B	A

1. First step is to read the question carefully so that you see what type of study he has specified for the table.
* If a cross-sectional study, you can find Prevalence Rates (PR).
* If a cohort or clinical trials study, you can find Incidence Rates (IR), Attributable Risks (AR) & Relative Risks (RR).

II. Begin Calculations

A. For a cross-sectional study:

- PR of exposed group = $\frac{A}{A+B} * 100$
- PR of non-exposed group = $\frac{C}{C+D} * 100$
- PR of total population = $\frac{A+C}{A+B+C+D} * 100$

B. For cohort or clinical trials/experimental study

- IR of exposed group = $\frac{A}{A+B} * 100$
- IR of non-exposed group = $\frac{C}{C+D} * 100$
- IR of total = $\frac{A+C}{A+B+C+D} * 100$
- $RR = \frac{\text{IR of exposed group}}{\text{IR of non-exposed group}}$
- $AR\% = \frac{[\text{IR of exposed}] - [\text{IR of non-exposed}]}{\text{IR of exposed}} * 100$
- $\text{Population AR\%} = \frac{[\text{IR of total population}] - [\text{IR of non-exposed}]}{\text{IR of total population}} * 100$

C. In case-control studies, you can calculate Odds Ratio:

$OR = \frac{A * D}{B * C}$ notice, it's a cross-product ration

Risk Factor	Disease +	Disease −
+	A	B
−	C	D

- PR is used in cross-sectional studies B/c its aim is to find out #1 risk factor or simply PR's.
- Clinical trials and Cohort studies deal w/ causation.
- When calculating incidence Rate, you want to know # of people w/ disease.
So for exposed group, it's IR of those exposed to risk factor:

$$IR_E = \frac{A}{A+B} * 100$$

A → total # of those exposed, w/ disease.

A+B → total of people exposed to risk

And so on....