Exemples de supports en séance
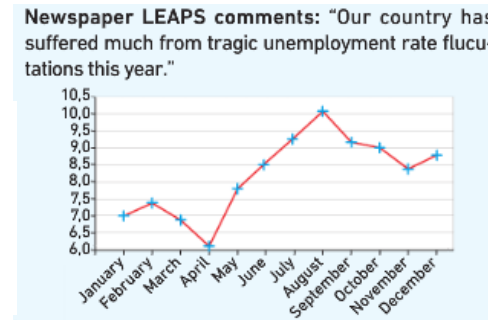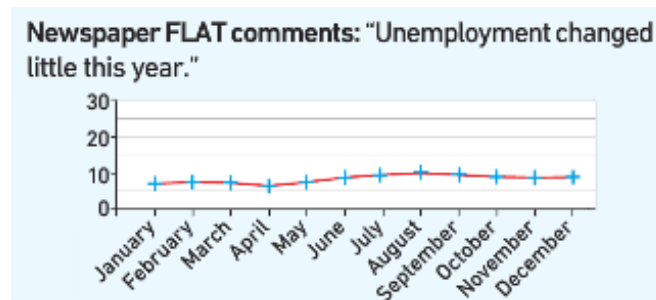
Exemple 1

1) In a newspaper, we can read :
   a) Describe the variations of the unemployment rate this year.
   b) Compute the approximate percentage increase of this rate between June and August.

Newspaper LEAPS comments: "Our country has suffered much from tragic unemployment rate flucutations this year."

2) In another newspaper, we can read the following sentence about the same unemployment rate:

Newspaper FLAT comments: "Unemployment changed little this year."

Comment on the assertions of these newspapers.

Exemple 2
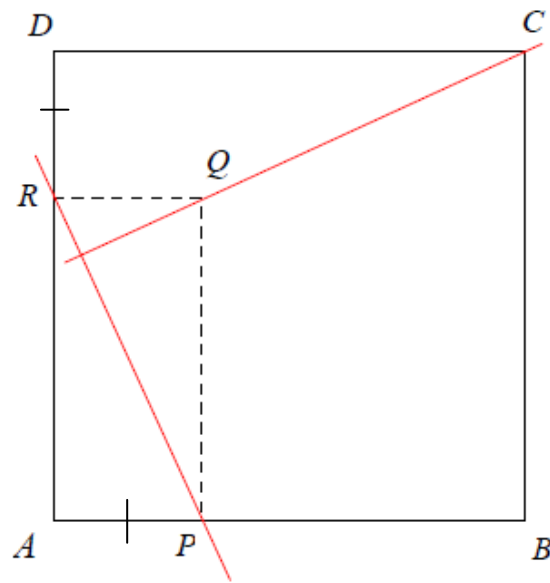
AB= 10 cm ;   AP = DR = 3 cm

1. Describe this geometrical figure.
2. What can you conjecture about the red lines ?
3. To prove this conjecture:
   a. Choose a method, describing all the steps of this strategy.
   b. Apply this method to achieve the demonstration.

Exemple 3

"Suppose we toss a coin 50 times and get 27 heads and 23 tails. We define a head as a success. The relative frequency of heads is: $\frac{n}{N} = \frac{27}{50} = 54\ \%$.

The probability of a head is 50%. The difference between the relative frequency of 54% and the probability of 50% is due to small sample size."

1. Explain the difference between "probability" and "relative frequency".
2. The sampling interval at level 95% is given by the formula :

$$\left[p - \frac{1}{\sqrt{n}} ; p + \frac{1}{\sqrt{n}} \right]$$

    a. In the experiment described in the text, how much is p ? n ?
    b. Determine the corresponding sampling interval.
    c. Explain the use of this interval.
    d. Can you consider the coin of the text as "biased" ?
    e. If n is increasing, what's the consequence on the sampling interval ? Illustrate this giving an example.
    f. Explain the sentence: " The difference between the relative frequency of 54% and the probability of 50% is due to small sample size."
    g. Imagine a case for which the difference between the probability of 50% and the relative frequency of 54% wouldn't be "normal".