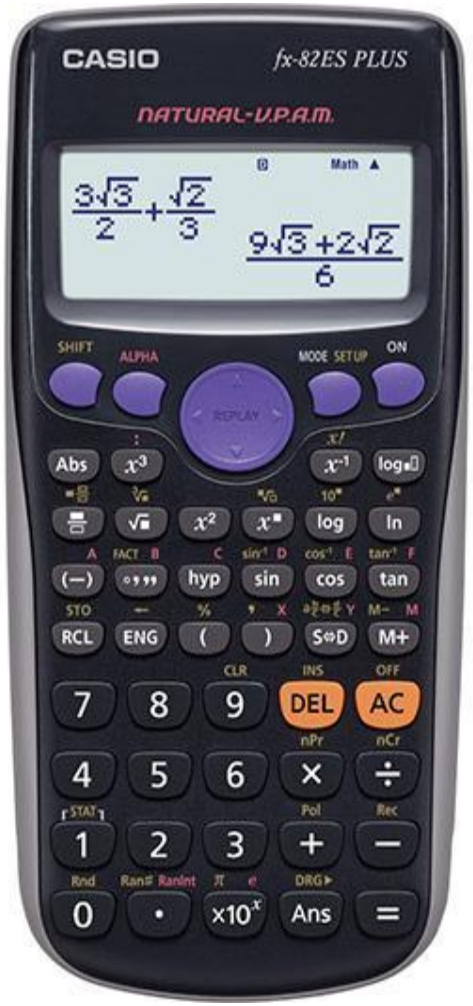
SCIENTIFIC CALCULATORS

Presenters: Yesbolat

Date: $29-(05*2+0)=19$

Schedule.

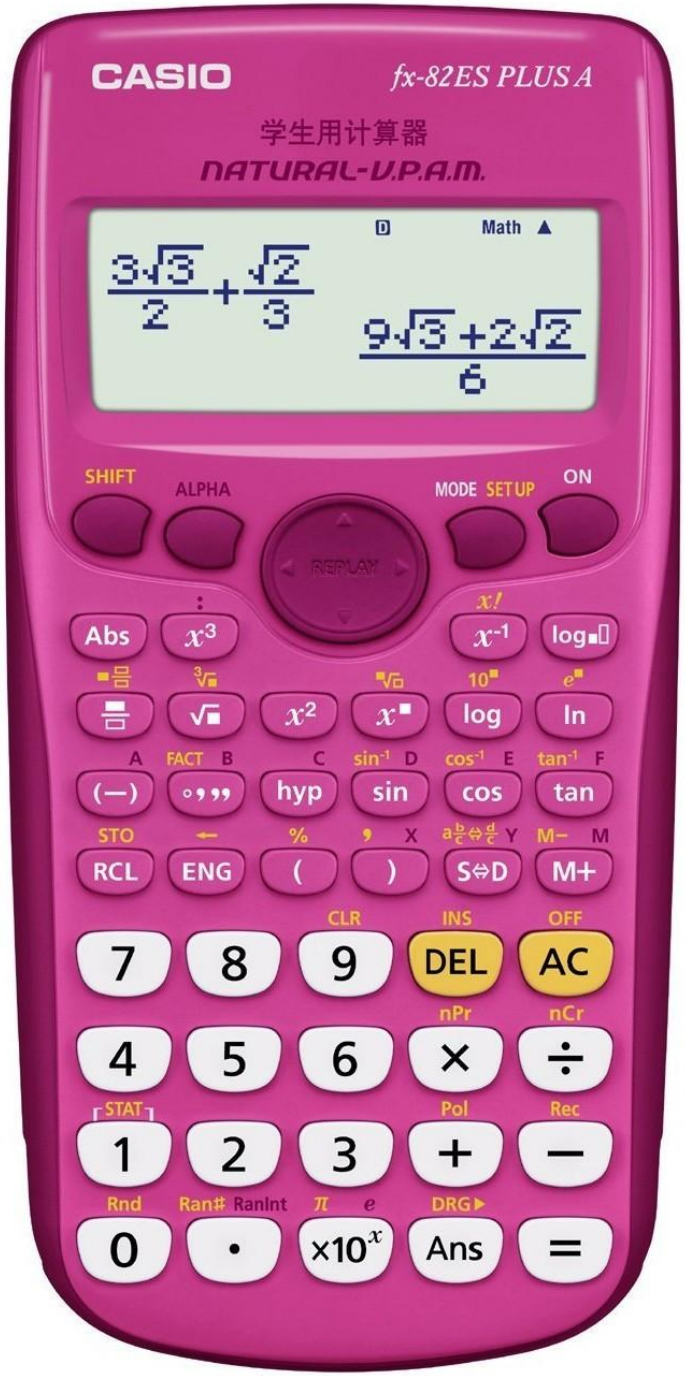
- How to use the Scientific Calculators:
  (5 min)
- Examples with calculations:
  (20 min)
- Question / Answer session:
  (7 min)
- Peer / Reflection Activity:
  (3 min)



Purpose / Objective:

- Using scientific calculators to solve questions in the following topics;

- Logarithms
- Trigonometry
- Combinations / Permutations.
- Statistics



EXAMPLE

- The radius of a circle is 8.67cm. Find the circumference (Perimeter) of the circle.

- A) 236 cm

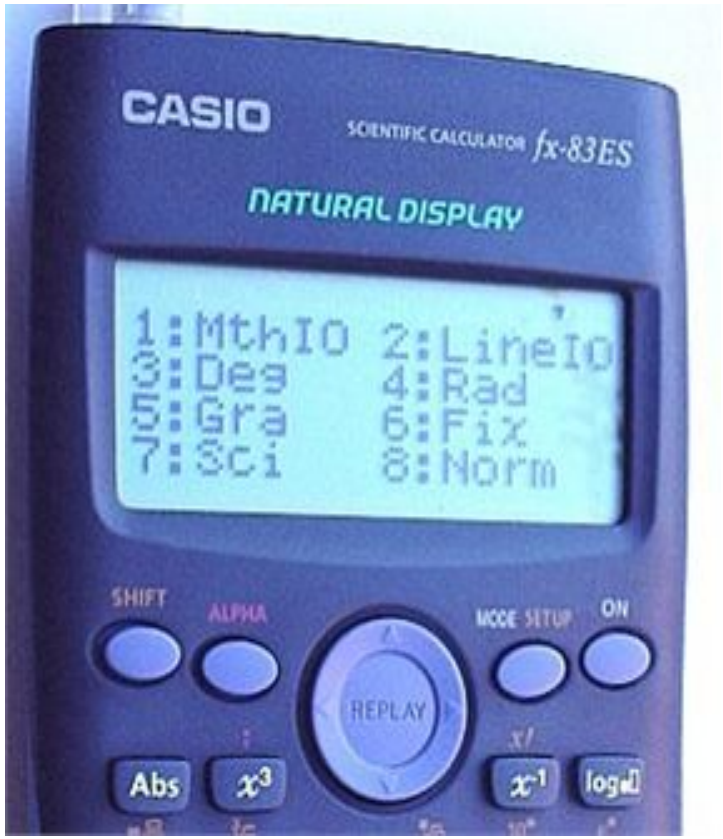
- B) 54.4 cm

- C) 54.5 cm

- D) 27.2 cm

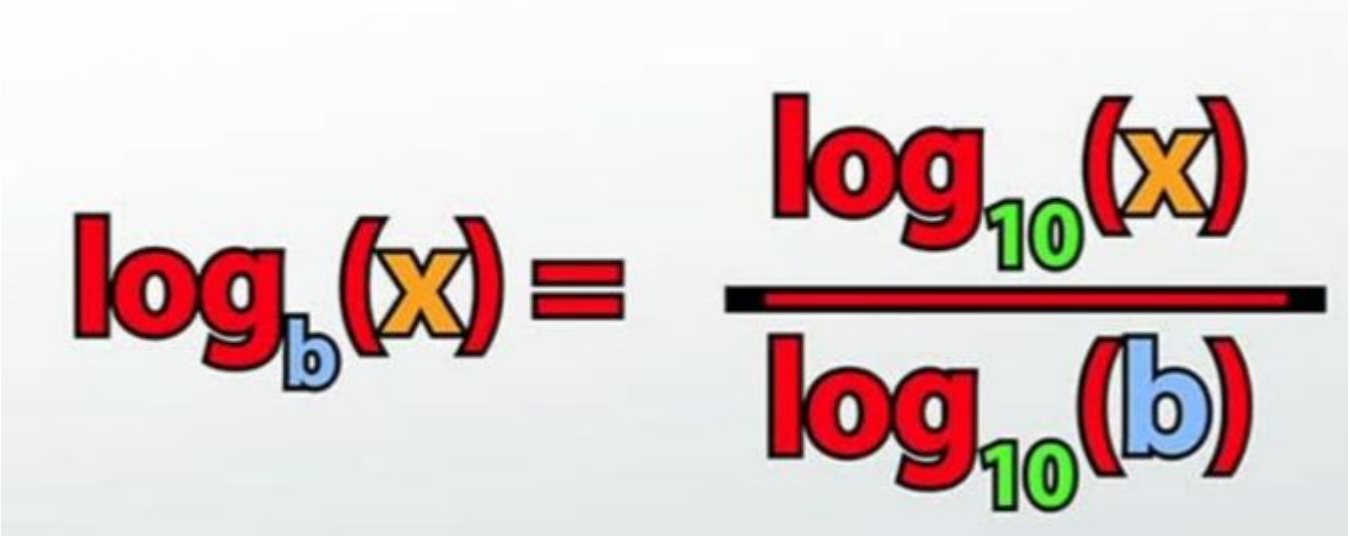
BEFORE YOU START.

- Ensure that your calculator is set to degrees, and has Math format.
- SHIFT → SETUP → 1
- Clear the memory
- 0 → SHIFT → RCL → M+



LOGARITHMS

- Standard logarithm (Base of 10)
- Natural logarithm (Base of *e*)
- Logarithm with any base.

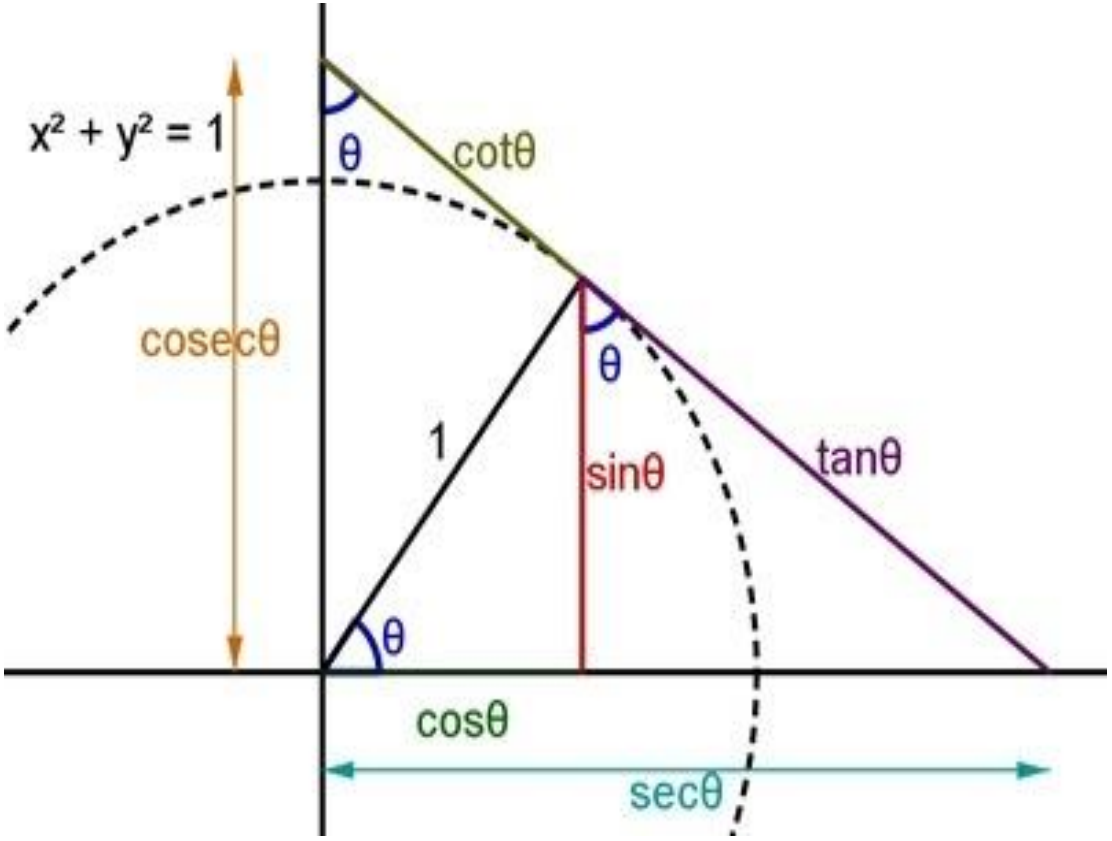


Assessment exercise - Logarithms

- $\log_7 10$
  - *1.183*
- $\log \pi$
  - 0.497

TRIGONOMETRY

- Using trigonometric ratios sine, cosine and tangent.
- Finding angles using trigonometry.



Assessment exercise - Trigonometry

- Find $\sin 76^\circ$
  - 0.9703
- $\tan \frac{5\pi}{12}$ in surd form
  - $2 + \sqrt{3}$
- Find θ if $\tan \theta^c = 1.56$
  - 1
- Solve $2 \sin\left(x + \frac{\pi}{3}\right) = -1$ for $0 \leq x \leq 2\pi$
  - $\frac{5\pi}{6}, \frac{3\pi}{2}$

PERMUTATIONS AND COMBINATIONS

- Permutations – Arranging in order
- Combinations – Choosing or selection

$$ {}_nC_r = \frac{{}_nP_r}{r!} = \frac{n!}{r!(n-r)!} $$

Assessment exercise - Combinations

- A committee of 6 members is to be selected from 5 men and 9 women. Find the number of different committees that could be selected if;
- There are no restrictions.

- $^{14}C_6 = 3003$.
- There are exactly 3 men and 3 women on the committee.

- $^{5}C_3 \times {}^{9}C_3 = 840$
- There is at least 1 man on the committee.

- Total – All women, $3003 - {}^{9}C_6 = 2919$

STATISTICS

- Mean, mode and median
- Variance and Standard Deviation

Assessment exercise - Statistics

- Find the mean and standard deviation for the data below.
- 27, 36, 52, 89, 102, 116, 123, 149, 162

- $\mu = 95.1$
- $\sigma = 45.5$

Score	10	11	12	13	14	15	16
Freq	15	12	5	8	10	13	6

- $\mu = 12.7$
- $\sigma = 2.08$