

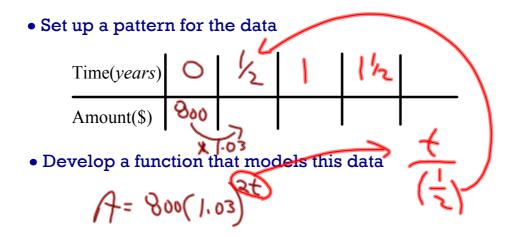
Evaluate the following without a calculator...

$$36^{\left(0.5 + \log_6 \sqrt{2}\right)}$$

## Applications using Logarithms

## Example:

An investment of \$800 is made in a term deposit that pays 6 %/a compounded semi-annually. How long will it take to triple the value of the investment?



• Use this function to solve the problem

$$\frac{2400}{800} = 800 (1.03)^{24}$$

$$3 = 1.03^{24}$$

$$1003 = 1000 (1.03)^{24}$$

$$1003 = 24 1001.03$$

$$4 = 1000 1.03$$

$$4 = 1000 1.03$$

$$4 = 1000 1.03$$

$$4 = 1000 1.03$$

- #2. The grade 12 Biology class has been growing a new bacteria culture. The population was intially 5000 bacteria and doubles every three hours.
  - a) What will be the population after 240 minutes.
  - b) How many hours will it take for the bacteria population to reach 1 million?

