

# MATH 1311

Calculator Review

# Calculator

You will need a graphing calculator for this course...preferably TI 84.

For quizzes, homework, and classwork, you may use the Desmos App instead...then “time-share” a graphing calculator with some friends for testing!

Some Symbols to keep in mind:

- “^” is called the caret symbol. This is how you raise something to a power.

Example:  $5^3 = 5 * 5 * 5 = 125$



$5^3$	125
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- $\pi = 3.14159 \dots$  This is called “pi”.



$\pi$	3.141592654
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- $e^1 = 2.71828 \dots$  This is called the Exponential Function.



$e$	2.718281828
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## Some Rules to Keep In Mind:

- Rounding
  - \* We generally round to two decimal places, there will be times when it is appropriate to use fewer or more decimal places.
  - \* We round down for numbers 0-4.
  - \* We round up for numbers 5-9.
- PEMDAS
  - \* P: Parenthesis
  - \* E: Exponents
  - \* M: Multiplication
  - \* D: Division
  - \* A: Additions
  - \* S: Subtraction
- To let the calculator know that a group of numbers all go together, we use parentheses.

## Types of Interest:

- Simple Interest on a loan means that you wait until the end of the loan before calculating or paying interest.
- (More Commonly Known) Compound Interest is when at certain periods the interest you have incurred is calculated and added to your debt. Banks use this type of interest.
- Monthly Interest Rate is when the amount owed is calculated each month. Automobile loans, and home mortgages. Interest is compounded monthly.
- APR: The APR is the measure of the annual interest rate charged on consumer loans
- The value of  $r = \frac{APR}{12}$

Simple Interest:

$$I = P_0 * r * t$$

Compound Interest:

$$P_t = P_0(1 + r/n)^{nt}$$

## Examples

If you borrow \$5000 from a bank that charges 7%, how much money will you owe after 10 years?

Calculate how much you owe using:

a) Simple Interest :

c) Monthly Interest Rate

b) Compound Interest:



$$P = E \left[ \frac{1 - (1 + i)^{-n}}{i} \right],$$

1. If the equation for present value of an annuity is given by where  $E = 2000$ ,  $i = \frac{.13}{4}$ ,  $n = 36$ . What is the correct way to input this in the calculator to solve for  $P$ ?



$$F = E \left[ \frac{(1 + i)^n - 1}{i} \right],$$

2. If the equation for future value of an annuity is given by where  $E = 2000, i = .07, n = 32$ . What is the correct way to input this in the calculator to solve for  $F$ ?

$$F = E \left[ \frac{(1 + i)^n - 1}{i} \right],$$

3. If the equation for the future value of an annuity is given by where  $E = 150$ ,  $i = \frac{.0245}{12}$ ,  $n = 72$ . What is the correct way to input this in the calculator to solve for  $F$ ?

$$E = \frac{Pi}{1 - (1 + i)^{-n}}$$

4. If the equation for amortization is

$P = 31,998$ ,  $i = \frac{.0725}{12}$ ,  $n = 72$ . What is the correct way to input this in the calculator to solve for  $E$ ?

$$E = \frac{Fi}{(1+i)^n - 1}, \text{ where}$$

5. If the equation for sinking fund is

$F = 100,000$ ,  $i = \frac{.06}{4}$ ,  $n = 72$ . What is the correct way to input this in the calculator to solve for  $E$ ?

6. If I want to evaluate  $\frac{\sqrt{6+e}+1}{2}$ , and I input  $\sqrt{6+e}+1/2$ , into the calculator, what is my mistake?

7. If I want to evaluate  $\frac{7^{3.2} - 6}{\sqrt{2} + 4}$ , and I input  $(7^{3.2} - 6)/(\sqrt{2} + 4)$ , into the calculator, what is my mistake?

8. What is  $\left(\frac{4 + \pi}{9}\right)^{\left(6 + \frac{4}{8}\right)}$  equal to?

9. What is  $\frac{7.6}{7.8 + e^{-6.5}}$  equal to?



10. Evaluate the formula  $\frac{A}{\sqrt{A} + \sqrt{B}}$  using  $A = 17$  and  $B = 30$ .