

Tips to Improve Your Grade

- Do your homework the night I assign it!!!
- Come with questions the next day!! (You can't have questions if you don't do your homework...)
- Don't wait until the due date or a day or 2 before the test to try to figure every thing out.
- The second you get lost, come get help or you'll get more lost...
- Don't waste your time in here!!! (I can't help you at home...)

Feb 15-12:25 PM

Coming up in Pre-Calculus...

Today: 3.1
Tomorrow: 3.2a
Thursday: 3.2b
Friday: 3.1/3.2 Recap

Feb 2-11:26 AM

3.1 :: Exponential Functions and their Graphs

Feb 15-11:00 AM

Exponential Functions

Parent function: $y = b^x$

Growth $b > 1$
 Decay $0 < b < 1$

Exponential Growth: $y = 2^x$

Exponential Decay: $y = (\frac{1}{2})^x$

Feb 2-11:31 AM

Review of some TRANSFORMATIONS! Assume c is positive.

Adding/Subtracting = Vertical/ Horizontal

Adding c on the outside of the pf: $y = 2^x + 5$ up 5

Subtracting c on the outside of the pf: $y = (\frac{2}{3})^x - 1$ down

Adding c on the inside of the pf: $y = (\frac{1}{3})^{x+4}$ left 4

Subtracting c on the inside of the pf: $y = (1.7)^{x-9}$ R+9

Multiplying by a negative = Reflects

A negative on the outside of the pf: $y = -(3)^x$ X-axis

A negative on the inside of the pf: $y = (7)^{-x}$ p. 193, #19 (HW) Y-axis

Feb 2-11:36 AM

Describe the transformations.

$f(x) = 2^x; g(x) = 2^{-x} + 3$ Reflect y-axis; up 3

$f(x) = (\frac{2}{3})^x; g(x) = -(\frac{2}{3})^{x+1}$ Reflect x-axis; Right 1

Feb 15-11:07 AM

"Use a graphing utility to construct a table of values..."

How many values?? Give me at least 7. $y = 2^x - 3$

To create a table:

- Type your function into the y= editor
- Go to 2nd WINDOW and make sure your independent variable is set to **ASK**
- Go to 2nd GRAPH and input 7 different x-values to find the corresponding y-values.
- Viola! You've constructed your table.

p. 193, #33 (HW)

Feb 2-11:42 AM

Construct a table of values. Then sketch the graph. Identify any asymptotes.

$f(x) = 2^{x-1} + 2$

x	y
-3	.0625
-2	.125
-1	.25
0	.5
1	1
2	2
3	4

Asymptote: $y=0$

Feb 15-11:11 AM

Use a table of values to identify any asymptotes.

$f(x) = 3^{-|x|}$

x	y
-3	.037
-2	.111
-1	.333
0	1
1	.333
2	.111
3	.037

Feb 15-12:35 PM

A very special number...

e^1 $(1 + \frac{1}{x})^x$

What happens as $x \rightarrow \infty$?

$(1 + \frac{1}{x})^x \rightarrow 2.718$
 e

Feb 2-11:45 AM

Compound Interest

Definition. Compound interest is interest computed on your original investment as well as an accumulated interest.

The letters we use for variables are...

P (principal): amount of money originally invested 5.5%
 r (rate): annual interest year in decimal form .055
 A (amount): money you have in total

Hence, after one year you have: $A = P(1+r)^t$

Years	Accumulated Value
0	P
1	$P(1+r)$
2	$P(1+r)(1+r)$ $P(1+r)^2$
3	$P(1+r)^3$
4	
...	
t	$P(1+r)^t$

Feb 2-1:32 PM

Say your money is compounded n times a year. Then

$A = P(1 + \frac{r}{n})^{nt}$

Example
 A sum of \$10,000 is invested in a fund where interest is 8%, compounded semiannually. Find the amount of money in the account after 5 years.

$A = 10000(1 + \frac{.08}{2})^{2 \cdot 5}$
 $\$14,802.44$

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Continuous Compounding: what happens when you let n increase without bound? ($n \rightarrow \infty$)

Take our usual formula: $A = P \left(1 + \frac{r}{n} \right)^m$

Make the substitution $m = \frac{n}{r} \left(\frac{1}{m} = \frac{r}{n} \right)$:

As $n \rightarrow \infty, m \rightarrow$

$A = P e^{rt}$
 $A = 10000 e^{.08 \times 5}$
 $\$14,918.25$

What happens as $x \rightarrow \infty$?

$\left(1 + \frac{1}{x} \right)^x \rightarrow 2.718$

e

Feb 2-1:40 PM

Compound Interest formulas (p. 190)

- For n compoundings a year: $A = P \left(1 + \frac{r}{n} \right)^{nt}$
- For continuous compounding: $A = P e^{rt}$

p. 194, #55 (HW)

Feb 2-1:43 PM

HOMEWORK

Do your homework tonight!!! If you don't understand, come with questions tomorrow or you'll just get behind...

3.1 (p193): 17-21 odd, 31-35 odd, 45-67 (1,5,7's)

Feb 2-1:48 PM