Book and homework on your desk.

You will have 10 minutes to read HF.


10 MINUTES

Announcements

Exponents tests returned soon

HF through Chapter 6 must be completed by Monday

Test Wednesday, 2/20

Homework Check

Unit Map

~~Thursday, 2/7/2019 → Transformations of functions~~
~~Friday, 2/8/2019 → Ms. Barger Absent, Hidden Figures reading and work~~
~~Monday, 2/11/2019 → Exponential Growth and Decay~~
Tuesday, 2/12/2019 → Compound Interest and Half Life
Wednesday, 2/13/2019 → Transformations of Exponentials
Thursday, 2/14/2019 → Scientific Notation converting back and forth
Friday, 2/15/2019 → Scientific Notation adding and subtracting & multiplying and dividing
Monday, 2/18/2019 → Scientific Notation word problems
Tuesday, 2/19/2019 → Review
Wednesday, 2/20/2019 → **Exponents Test 2**

After yesterday, you should be able to answer...

If a student deposits $1500 in the bank and earns an annual interest rate of 8% how much will he have after 15 years?

The population of Barnardsville in 2014 was estimated to be 24,000 people with an annual rate of increase of about 2.4%. Write a function what would give you the estimated total population, y, of Barnardsville.

Quizlet

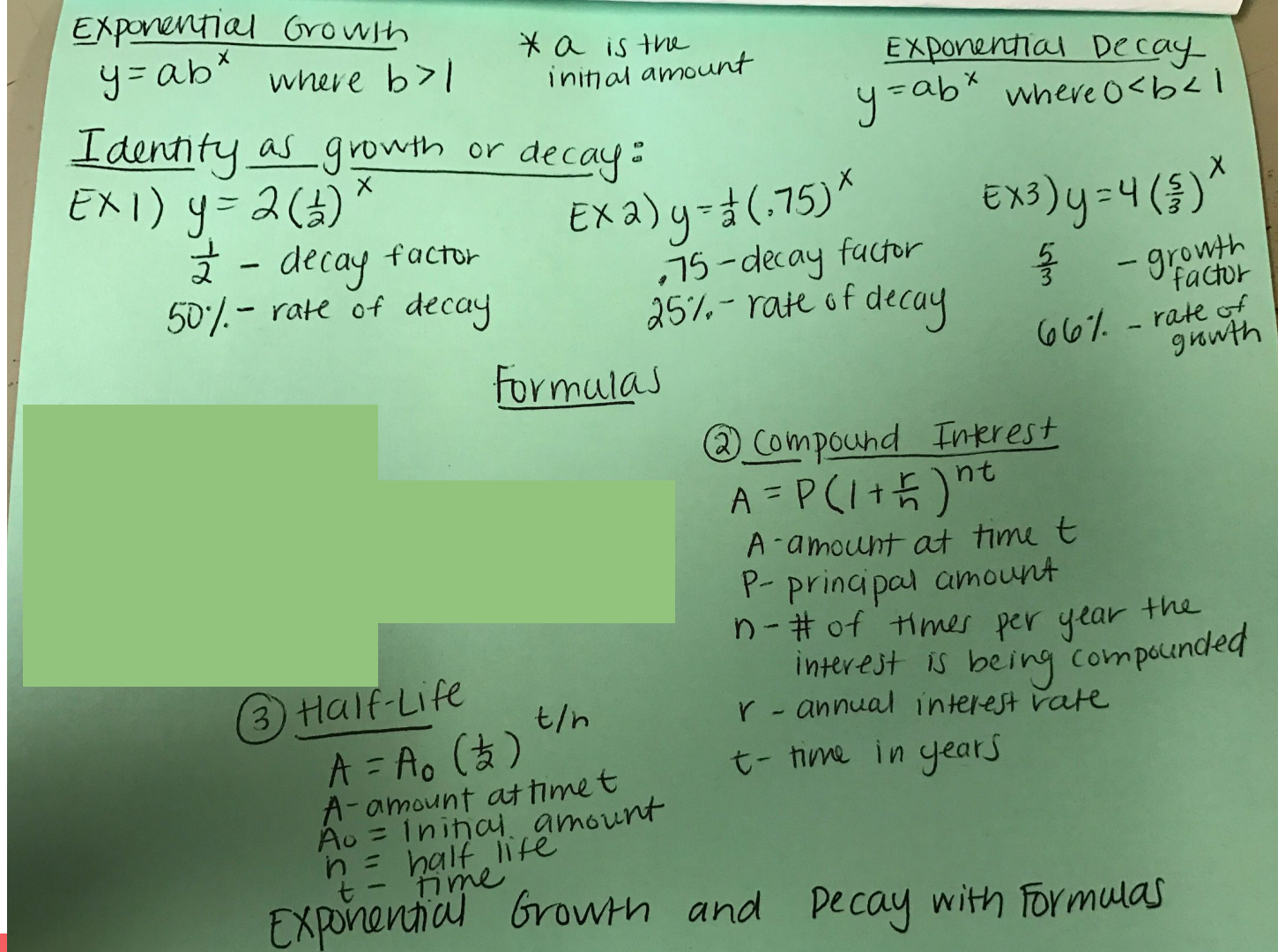
https://quizlet.com/_642L9y

Compound Interest and Half Life

2/12/2019

Exponential Growth and Decay Formulas

Foldable!


Exponential Growth
$y = ab^x$ where $b > 1$
* a is the initial amount
Exponential Decay
$y = ab^x$ where $0 < b < 1$
Identify as growth or decay:
EX 1) $y = 2(\frac{1}{2})^x$
$\frac{1}{2}$ - decay factor
50% - rate of decay
EX 2) $y = \frac{1}{2}(.75)^x$
.75 - decay factor
25% - rate of decay
EX 3) $y = 4(\frac{5}{3})^x$
$\frac{5}{3}$ - growth factor
66% - rate of growth
Formulas
② Compound Interest
$A = P(1 + \frac{r}{n})^{nt}$
A - amount at time t
P - principal amount
n - # of times per year the interest is being compounded
r - annual interest rate
t - time in years
③ Half-Life
$A = A_0(\frac{1}{2})^{t/n}$
A - amount at time t
A_0 = initial amount
n = half life
t - time
Exponential Growth and Decay with Formulas

Compound Interest ➳ $A = P(1+r/n)^{nt}$

A - Amount at time t

P - Principal amount invested

n - Number of times per year interest is compounded

r - Annual interest rate (written as a decimal)

t - Time in years

Compound Interest ➳ $A = P(1+r/n)^{nt}$

15. $4000 principal earning 6% compounded annually, after 5 yr

Compound Interest ➳ $A = P(1+r/n)^{nt}$

Example 1: Suppose that when your friend was born, your friend's parents deposited $200 in an account paying 4.5% interest compounded quarterly. What will the account balance be after 18 yr?

Half-Life ↠ $A = A_0(½)^{t/h}$

A - Amount at time t

A_0 - Initial Amount

h - Half-life

t - Time

Half-Life ⇾ $A = A_o(½)^{t/h}$

a. Iodine-131 is used to destroy thyroid tissue in the treatment of an overactive thyroid. The half-life of iodine-131 is 8 days. If a hospital receives a shipment of 200 g of iodine-131, how much I-131 would remain after 32 days?

Half-Life ↠ $A = A_o(½)^{t/h}$

b. Technetium-99 is used for brain scans. If a laboratory receives a shipment of 200 g of this isotope, how much will remain after 24 hours. The half life of Technetium-99 is 6 hours.

Homework

Textbook page 459 # 18-22

Additionally answer these three questions:

1) Fluorine-21 has a half life of approximately 5 seconds. How much would remain after 1 minute if you started with 100 grams?

2) Iodine-131 has a half life of 8 days. How much would remain at the end of 32 days if you started with 4000 grams?

3) The half-life of chromium-51 is 28 days. If the sample contained 510 grams, how much chromium would remain after 56 days? How much would remain after 1 year? How much was present 168 days ago?