#4, 15, 16 abc

Really? Really!

During the baby boomer years, approximately 76 million Americans were born. In 1957, 4.3 million babies were born in the United States. This is more than any year before or since. One of the baby boomers reaches 50 every seven seconds. That is around 11,960 people a day and 4 million a year.

In 2006, the oldest of the baby boomers, the generation born around 1946, turned 60 years old. Among the Americans celebrating their 60th birthday in 2006 were two recent presidents, George W. Bush and Bill Clinton. A host of world famous rock stars and entertainers reached their 60s by 2010.

Nearly 6,000 Americans turn 65 every day. That figure will jump to 9,000 as the baby boomers age. By 2030, there will be over a million centenarians in this country.

1. *How many baby boomers reach the age of 50 each day?* about 4.5 million
2. When 9,000 baby boomers per day reach the age of 65, how many will reach the age of 65 per year? 3,285,000
3. In 1957, how often was a baby born, on average? one every 7.3 seconds
4. There is constant concern that the Social Security Trust Fund will run out of money, since so many people are living longer. If, around 2030, there are 1 million people over the age of 100, estimate the total number of years they would have collected Social Security. Explain your answer. See margin.

REALLY? REALLY! REVISITED

If students research baby boomers on the Internet, they will find an abundance of information. Talk to their history teachers and find out if there is a window of opportunity to do a meaningful inter-disciplinary project on the baby boomers. This could involve their birth after World War II, and lead up to their future *retirement-related financial* issues. It includes fascinating information on the rise of the suburbs in American history.

ANSWERS

4. If 1 million people collect Social Security for the ages 65–100, the total number of years is approximately 35 million. This does not include the millions of others who did not reach age 100, but who are collecting Social Security.

Applications

1. In 2009, the maximum taxable income for Social Security was $106,800. The FICA tax rate was 6.2%.
   a. What is the maximum anyone could have paid into FICA tax in the year 2009? $6,621.60
   b. Bill had two jobs in 2009. One employer paid him $77,090 and the other paid him $31,280. Each employer took out 6.2% for Social Security. How much did Bill overpay in Social Security for 2009? $97.34
2. In 1990, the amount of earnings required to earn one Social Security credit was $520. In the tax year 1990, Maggie earned $187 biweekly. How many Social Security credits did she earn in 1990? 4
3. Anna turned 62 in 2007, and she is computing Social Security benefits. Using the formula from Example 3 in Lesson 9-2, compute her Social Security full retirement benefit if her average monthly salary over her 35 highest-paying years was $3,766. $1,599.52
4. Nick's annual salary is $90,000. His employer matches his 401k contributions at $0.75 for each dollar up to 8% of his annual salary. Nick contributes $350 from each biweekly paycheck to his 401k account. What is the combined total of his annual contribution and his employer's contribution? ~~$15,925~~ 14,500

5. Juanita's Social Security full monthly retirement benefit is $2,128. She started collecting Social Security at age 65. Her benefit is reduced since she started collecting before age 67. Using the reduction percents from Example 4 in Lesson 9-2, find her approximate monthly Social Security benefit to the nearest dollar. $1,845

6. Charleen is single. She is filling out the Social Security worksheet shown on page 451 so she can determine the amount of her Social Security benefits that she will pay federal income tax on. The following lines were taken from her tax information.

- Line 1 She received $38,121 in Social Security benefits.
- Line 3 The total of her other sources of income is $23,907.
- Line 4 The amount from line 8b is $450.
- Line 6 The total to enter is $3,211.

How much of Charleen's Social Security benefit must she pay federal income tax on? $9,775.53

7. Reliable Insurance Company offers a term life insurance policy with a renewable annual premium. The first year premium is $795. Premiums increase by 4.1% each year. What will premiums be in the nth year? $795(1.041)^{n-1}$

8. Alex took out a 15-year term policy with a face value of f dollars. Over the lifetime of the policy, he pays monthly payments of m dollars. He dies after making payments for $1\frac{1}{2}$ years. Express algebraically the difference between the amount Alex paid in premiums and the amount his beneficiaries received when he died. $f - 18m$

9. Paul has a universal life insurance policy with a face value of f dollars. The current cash value of the policy is c dollars. The premium is m dollars per month. He is going to use the cash value to pay for premiums for as long as it can. In those months the cash value will earn i dollars in interest. Express algebraically the number of months the cash value can be used to pay the premium. $\left[\frac{c}{m}\right]$

10. Use the mortality table to answer parts a and b.

Exact Age	Death Probability	
	Males	Females
62	0.014123	0.08959
63	0.015312	0.09747
64	0.016567	0.010582
65	0.017976	0.011511
66	0.019564	0.012572
67	0.021291	0.013772

a. If the company insures 10,000 63-year-old males, how many are expected to die before their 64th birthday? Round to the nearest integer. 153

b. Based on the table, what is the probability that a 63-year-old male will live to his 64th birthday? $1 - 0.015312 = 0.984688$

annual premium of $973. The mortality table is given below.

Age at Death	40	41	42	43	44	Age > 44
Mortality Rate	0.0008	0.0009	0.0011	0.0012	0.0013	p

a. Assume the policyholder pays the premium annually. What is the *insurance company profit on this policy for each year of death?* See margin.

b. What is the expected profit from selling one of these policies? Round to the nearest cent. $3,530.95

c. What is the expected profit from selling 5,000 of these policies? $17,654,750

12. Deanna is 62 years old. She plans to retire in 3 years. She has $300,000 in a savings account that yields 2.25% interest compounded daily. She has calculated that her final working year's salary will be $94,000. She has been told by her financial advisor that she should have 65% of her final year annual income available for use each year when she retires.

a. What is the income that her financial advisor feels she must have per year once she retires? $61,100

b. Use the compounding formula to determine how much she will have in her account at the ages of 63, 64, and 65. See margin.

c. Assume that Deanna is planning on using 60% of her current salary in each of her first 5 years of retirement. What should that annual amount be? $56,400

d. Deanna has decided that she will need $20,000 each year from her savings account to help her reach her desired annual income during retirement. Will Deanna be able to make withdrawals of $20,000 from her savings account for 20 years? Explain your reasoning. No; 20,000 × 20 = 400,000 and 400,000 > 320,948.

13. Mitch opened a retirement account that has an annual yield of 4.2%. He is planning on retiring in 13 years. How much must he deposit into that account each year so that he can have a total of $1,000,000 by the time he retires? Round to the nearest $10,000 dollars. approximately $60,000

14. Hillary's employer offers an annual pension benefit, for employees that have worked for the company for more than 10 years. The benefit is calculated by multiplying 5.08% of the career average salary by the number of years that exceeds 10 that the employee has worked for the company. Hillary's salary for the first five years was $26,745. After that she earned the following salaries:

29,000 29,400 30,100 32,500 32,500 33,200 33,400 34,700
35,000 35,000 35,000 35,000 36,700 38,000 39,000 39,500

a. What is Hillary's career average salary? $32,463.10

b. What is Hillary's annual pension under this plan? $14,569.44

c. What percentage of her final annual salary will her annual retirement salary be? Round your answer to the nearest percent. 37%

–$247,081, –$246,108, –$245,135, $4,8657

12b. $306,826.30, 313,807.93, and 320,948.42, respectively

15. Hannah contributed $300 per month into her retirement account in pre-tax dollars during the last tax year. Her taxable income for the year was $72,000. She files taxes as a single taxpayer.

a. What would her taxable income have been had she contributed to the account in after-tax dollars? $75,600

b. Use the tax tables below to calculate her tax in both the pre-tax and after-tax contribution situations. pre-tax $14,350; after-tax $15,250

If line 43 (taxable income) is—		And you are —			
At least	But less than	Single	Married filing jointly *	Married filing separately	Head of a household
		Your tax is —			
72,000					
72,000	72,050	14,350	10,694	14,539	13,069
72,050	72,100	14,363	10,706	14,553	13,081
72,100	72,150	14,375	10,719	14,567	13,094
72,150	72,200	14,388	10,731	14,581	13,106
72,200	72,250	14,400	10,744	14,595	13,119
72,250	72,300	14,413	10,756	14,609	13,131
72,300	72,350	14,425	10,769	14,623	13,144
72,350	72,400	14,438	10,781	14,637	13,156
72,400	72,450	14,450	10,794	14,651	13,169
72,450	72,500	14,463	10,806	14,665	13,181
72,500	72,550	14,475	10,819	14,679	13,194
72,550	72,600	14,488	10,831	14,693	13,206
72,600	72,650	14,500	10,844	14,707	13,219
72,650	72,700	14,513	10,856	14,721	13,231
72,700	72,750	14,525	10,869	14,735	13,244
72,750	72,800	14,538	10,881	14,749	13,256
72,800	72,850	14,550	10,894	14,763	13,269
72,850	72,900	14,563	10,906	14,777	13,281
72,900	72,950	14,575	10,919	14,791	13,294
72,950	73,000	14,588	10,931	14,805	13,306

If line 43 (taxable income) is—		And you are —			
At least	But less than	Single	Married filing jointly *	Married filing separately	Head of a household
		Your tax is —			
75,000					
75,000	75,050	15,100	11,444	15,379	13,819
75,050	75,100	15,113	11,456	15,393	13,831
75,100	75,150	15,125	11,469	15,407	13,844
75,150	75,200	15,138	11,481	15,421	13,856
75,200	75,250	15,150	11,494	15,435	13,869
75,250	75,300	15,163	11,506	15,449	13,881
75,300	75,350	15,175	11,519	15,463	13,894
75,350	75,400	15,188	11,531	15,477	13,906
75,400	75,450	15,200	11,544	15,491	13,919
75,450	75,500	15,213	11,556	15,505	13,931
75,500	75,550	15,225	11,569	15,519	13,944
75,550	75,600	15,238	11,581	15,533	13,956
75,600	75,650	15,250	11,594	15,547	13,969
75,650	75,700	15,263	11,606	15,561	13,981
75,700	75,750	15,275	11,619	15,575	13,994
75,750	75,800	15,288	11,631	15,589	14,006
75,800	75,850	15,300	11,644	15,603	14,019
75,850	75,900	15,313	11,656	15,617	14,031
75,900	75,950	15,325	11,669	15,631	14,044
75,950	76,000	15,338	11,681	15,645	14,056

c. How much did Hannah save in taxes during that year? $900

16. Regina is a 45-year-old supervisor for a communications company. She files taxes as married filing separately. She withdrew $50,000 from her tax-deferred retirement account to pay off her loans. Regina's taxable income for that year was $100,040, excluding the $50,000 early withdrawal from her retirement account.

a. Use the tax computation worksheet shown to calculate Regina's tax had she not made the early withdrawal. $22,383.20

Section C — Use if your filing status is **Married filing separately**. Complete the row below that applies to you.

Taxable income If line 43 is—	(a) Enter the amount from line 43	(b) Multiplication amount	(c) Multiply (a) by (b)	(d) Subtraction amount	**Tax** Subtract (d) from (c). Enter the result here and on Form 1040, line 44
At least $100,000 but not over $100,150	$	× 28% (.28)	$	$ 5,628.00	$
Over $100,150 but not over $178,850	$	× 33% (.33)	$	$ 10,635.50	$
Over $178,850	$	× 35% (.35)	$	$ 14,212.50	$

b. Use the same worksheet to calculate her tax with an increase in her taxable income of $50,000. $38,877.70

c. How much more in taxes did she pay because of the early withdrawal? $16,494.50

d. What was her early withdrawal penalty? $5,000

determined dollar amount (multiplier) is multiplied by the number of years of service to determine the monthly pension benefit using the schedule shown.

15–19	$52
20–25	$57
30+	$60

After working at Circuit for 23 years, Jane has decided to change careers and leave her current job. She has been told that there will be a 2.05 % cost of living adjustment soon after she retires. Calculate Jane's pension after the COLA. $1,337.88

18. Petra's employer offers an annual pension benefit calculated by multiplying 2.46% of the career average salary times the number of years employed. Here are Petra's annual salaries over the last 16 years of employment:

54,000 54,000 55,100 55,800 55,800 56,200 56,400 57,000
60,000 61,000 61,000 61,000 61,700 62,000 63,000 63,500

a. What is Petra's career average salary? $58,593.75
b. What is Petra's annual pension under this plan? $23,062.50
c. What percentage of her final annual salary will her annual retirement salary be? Round your answer to the nearest percent. 36%
d. What is Petra's monthly pension benefit? Round your answer to the nearest penny. $1,921.88

19. NuEditions Book Company uses a final average salary formula to calculate an employee's pension benefits. The amount used in the calculations is the salary average of the final 3 years of employment. The retiree will receive an annual benefit that is equivalent to 1.75% of the final average for each year of employment. Mike and Rob are both retiring at the end of this year. Calculate their annual retirement pension given the following information:

Mike: Years of employment: 25; $37,140.83

Final three annual salaries: $84,780, $84,900, $85,000

Kristy: Years of employment: 27; $35,122.50

Final three annual salaries: $71,600, $73,400, $78,000

20. Esteban's employer offers a pension plan that calculates the annual pension as the product of the final average salary, the number of years of service, and a 2% multiplier. His employer uses a graded vesting formula according to the schedule shown. Esteban has decided to change jobs after 3 years of service. What percent of his pension will he receive when he retires? 45%

Years Employed	Vesting Percentage
0	0%
1	0%
2	28%
3	45%
4	78%
5	100%