WARM UP

Page 332 Algebra Review #1-10

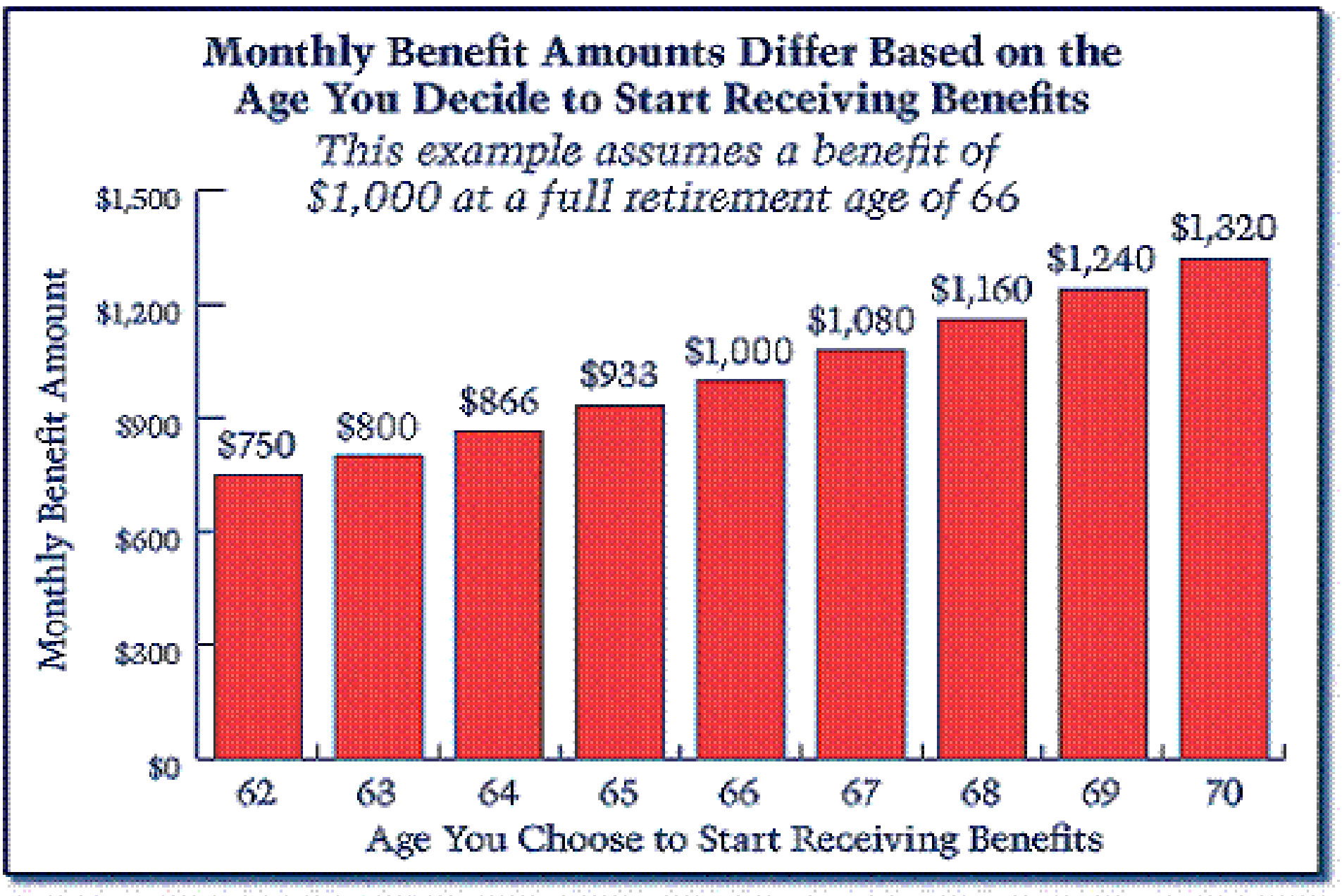
§7-3
Value for the Future

GOALS

- Examine reasons to invest in retirement plans that are tax deferred
- Calculate the future value of regular payments invested at compound interest
- Compare future cash-value life insurance with the future value of same amount invested in compound interest
- Compare the difference in accumulated cash value between investing directly and saving indirectly thru whole life insurance

SOCIAL SECURITY

- SS was not intended to provide one's sole source of income during retirement
- SS system may be bankrupt by the time you get age 66, since the Baby Boomers are drawing on the system at a rate of 2:1.
- Therefore it is recommended that you have your own Individual Retirement Account (IRA)
- http://www.socialsecurity.gov/


Monthly Benefit Amounts Differ Based on the Age You Decide to Start Receiving Benefits
This example assumes a benefit of $1,000 at a full retirement age of 66
Monthly Benefit Amount
$1,500
$1,200
$900
$600
$300
$0
$750
$800
$866
$933
$1,000
$1,080
$1,160
$1,240
$1,320
62
63
64
65
66
67
68
69
70
Age You Choose to Start Receiving Benefits

ANNUITIES

- **Annuity**- an investment plan that provides income upon retirement.
- This is a method of forced savings and is sometimes tax deferred.
- **Tax Deferred** - Investment earnings such as interest, dividends or capital gains that accumulate tax free until the investor withdraws and takes possession of them.
- Many times you can put money into an annuity thru payroll deduction, which will reduce your take home pay, but also reduce your taxable income.

ANNUITIES

- You do not pay takes on the returned contributions only the interest accumulated.
- The tax you pay will be less than when you made the original contributions because your income will be less.

IRA

- **IRA-** used to describe both **individual retirement accounts** and the broader category of **individual retirement arrangements**, encompasses an individual retirement account; a trust or custodial account set up for the exclusive benefit of taxpayers or their beneficiaries; and an individual retirement annuity by which the taxpayers purchase an annuity contract or an endowment contract from a life insurance company
  - From IRS Publication 590

IRA

- These have the same **tax shelter** advantages as annuities.
- **Tax Shelter**-an investment that reduces the payment of taxes.

- **Main types of IRAs**
  - Traditional (can withdraw at 59 ½ yrs old)
  - Roth
  - SEP
  - SIMPLE

TRADITIONAL IRA

- contributions are often tax-deductible, all transactions and earnings within the IRA have no tax impact,
- withdrawals at retirement are taxed as income (except for those portions of the withdrawal corresponding to contributions that were not deducted).
- Depending upon the nature of the contribution, a traditional IRA may be referred to as a "deductible IRA" or a "non-deductible IRA."
- It was introduced with the Employee Retirement Income Security Act of 1974 (ERISA) and made popular with the Economic Recovery Tax Act of 1981.

ROTH IRA

- Named after US Senator from Delaware William V. Roth Jr.
- the Roth IRA was introduced as part of the Taxpayer Relief Act of 1997.
- contributions are made with after-tax assets, all transactions within the IRA have no tax impact, and withdrawals are usually tax-free.

SEP IRA

- A **Simplified Employee Pension Individual Retirement Arrangement**
- a provision that allows an employer (typically a small business or self-employed individual) to make retirement plan contributions into a Traditional IRA established in the employee's name, instead of to a pension fund in the company's name.
- The most strict conditions for an employee to be eligible are as follows. The employee must:
- 1) be at least 21 years of age
- 2) have worked for the employer for at least three of the previous five years
- 3) have received at least $550 in compensation for the tax year

SIMPLE

- a **Savings Incentive Match Plan for Employees** that requires employer matching contributions to the plan whenever an employee makes a contribution
- It is an employer sponsored plan, like better-known plans such as the 401(k) and403(b) (Tax Sheltered Annuity plans), but offers simpler and less costly administration rules

EMPLOYER PENSION PLANS

- An employer will make tax-sheltered contributions to the plan that are larger than an employee could get through a regular IRA
- In some plans the employee may also contribute
- Examples include
- 401(k)
- 403(b)
- Keogh plan
- SEP IRA

401(K) PLAN

- is the tax-qualified, defined-contribution pension account
- Under the plan, retirement savings contributions are provided (and sometimes proportionately matched) by an employer, deducted from the employee's paycheck before taxation (therefore tax-deferred until withdrawn after retirement or as otherwise permitted by applicable law)
- limited to a maximum pre-tax annual contribution of $18,000 (as of 2015).

403(B) PLAN

- A **403(b)** plan is a U.S. tax-advantaged retirement savings plan available for public education organizations, some non-profit employers, cooperative hospital service organizations, and self-employed ministers
- It has tax treatment similar to a 401(k) plan, especially after the Economic Growth and Tax Relief Reconciliation Act of 2001.
- Employee salary deferrals into a 403(b) plan are made before income tax is paid and allowed to grow tax-deferred until the money is taxed as income when withdrawn from the plan.

FUTURE VALUE OF A PERIODIC INVESTMENT

- $A = \dfrac{p[(1+r)^n - 1]}{r}$

- A = future value of the investment
- p = the investment made at the end of each period
- r = the interest rate for each period
- n = the # of periods

SKILL 1

- Sydney's mother and father are both 40 years old. They just opened a IRA so they have additional income when they retire in 25 years. Each year they will deposit $3000 into each account, which they are expecting to pay about 5% interest compounded annually. How much will be in each account when they retire?

SKILL 1

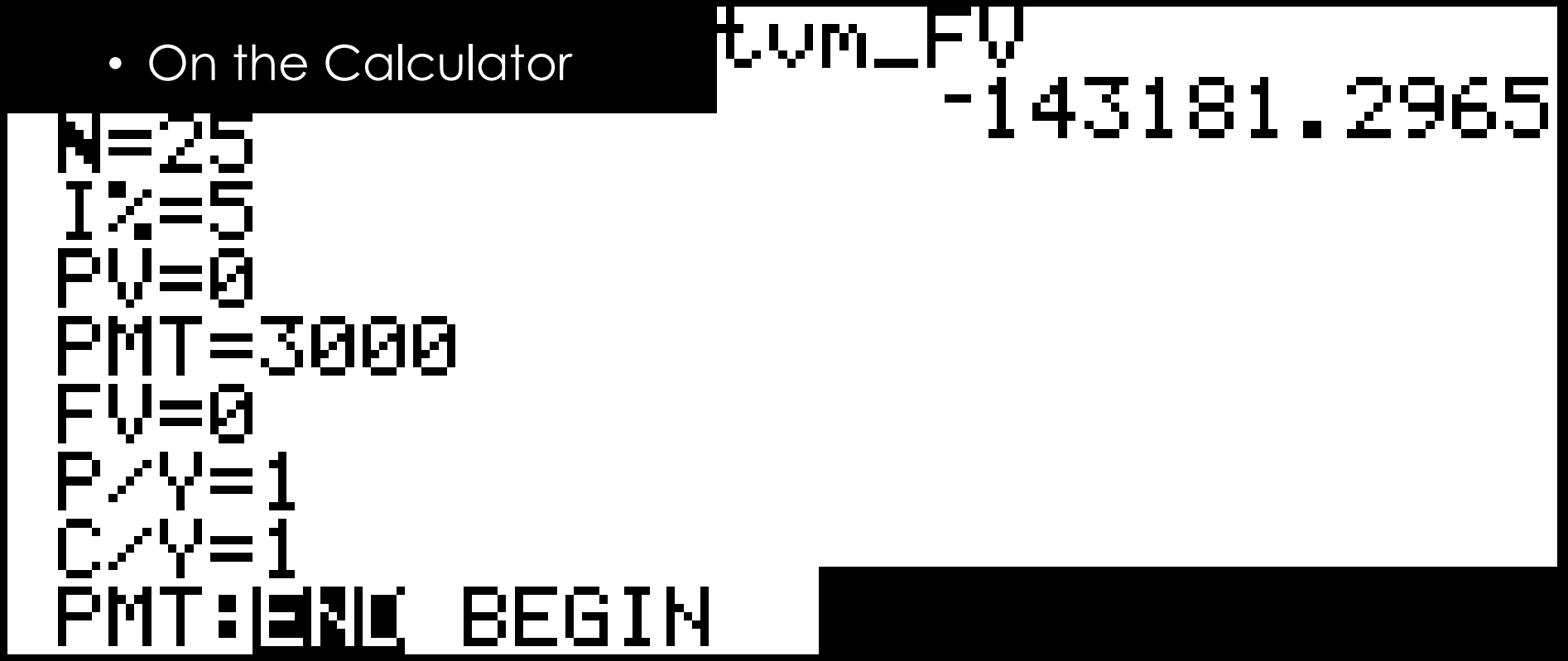
$$A = \frac{p[(1+r)^n - 1]}{r}$$

$$A = \frac{3000[(1+0.05)^{25} - 1]}{0.05}$$

$$A = \$143{,}181.29$$

SKILL 1

- On the Calculator



SKILL 2

- Suppose that Sydney's grandfather purchased $250,000 worth of whole life insurance when he was 30 years old.
- A)How much would the premium be?

- B)How much would he pay for insurance over a 45 year period?

P.676

COMPARISON TABLE FOR TERM AND WHOLE LIFE PREMIUMS

Policy Face Value is $100,000

Age	Five-Year Renewable Term	Whole Life	First-Year Difference
20	$205	$ 775	$ 570
25	207	918	711
30	218	1112	894
35	254	1374	1120
40	363	1729	1366
45	562	2127	1565
50	878	2689	1811

SKILL 2

- Suppose that Sydney's grandfather purchased $250,000 worth of whole life insurance when he was 30 years old.
- A) How much would the premium be?

- Premium = 2.5 x $1,112
- $2,780

SKILL 2

- Suppose that Sydney's grandfather purchased $250,000 worth of whole life insurance when he was 30 years old.

- B)How much would he pay for insurance over a 45 year period?

- Total = $2,780 x 45 =
- $125,100

SKILL 2

- Suppose that Grandpa invested his money in an annuity at paid 3% interest compounded quarterly, how much would the account be worth at the end of 45 years?

SKILL 2

- $A = \frac{p[(1+r)^n - 1]}{r}$

- $A = \frac{2780[(1.03)^{45} - 1]}{0.03}$

- $A = \$257{,}761.21$
- More than double the cash value, but he would have been without life insurance for that 45 years

SKILL 3

ACCUMULATED CASH VALUE OF $100,000 WHOLE LIFE POLICY
AGE OF ISSUE: 25

Year	Person's Age	Cash Value	Year	Person's Age	Cash Value
1	25	$ 0	11	35	$10,187
2	26	700	12	36	11,501
3	27	1500	13	37	12,860
4	28	2300	14	38	14,246
5	29	3100	15	39	15,667
6	30	4020	16	40	17,094
7	31	5158	17	41	18,555
8	32	6349	18	42	20,014
9	33	7538	19	43	21,563
10	34	8898	20	44	23,197

SKILL 3

- If David's grandmother had bought $150,000 worth of whole life cash value insurance at age 25, what would the cash value have been when he was 40?

- Using the table, 1.5 x $17.094 = $25,641

SKILL 3

- How much money could a 25 yr old accumulate between age 25 and 30 by buying a $100,000 term policy instead of whole life and investing the difference in an IRA at 6.75%?

SKILL 3

COMPARISON TABLE FOR TERM AND WHOLE LIFE PREMIUMS

Policy Face Value is $100,000

Age	Five-Year Renewable Term	Whole Life	First-Year Difference
20	$205	$ 775	$ 570
25	207	918	711
30	218	1112	894
35	254	1374	1120
40	363	1729	1366
45	562	2127	1565
50	878	2689	1811

SKILL 3

- Use the table to find the difference
- Whole life premium – term premium = annual savings
- $918- $207 = $711
- Then find how much an annual investment of $711 will grow to in 5 years at 6.75%
- $A = \frac{p[(1+r)^n - 1]}{r}$

SKILL 3

- $A = \frac{711\left[(1+0.0675)^5-1\right]}{0.0675}$
- $A = \$4{,}068.42$

ASSIGNMENT

- Page 347
- TYS
- #1-14