4-3 AUTOMOBILE INSURANCE

Advanced Financial Algebra

WHY IS HAVING AUTO INSURANCE SO IMPORTANT?

- Even responsible drivers run the risk of injuring themselves, hurting other people, or damaging property.

- By law, drivers are liable (responsible) to pay for the damages they cause with their automobiles.

- Also, you can be sued for negligence if you cause an accident (at fault.

- Therefore, you should purchase insurance since you may not be able to afford to pay for all of those costs.

- Some states require insurance (you may not be able to register your car in many states without insurance).

Types of Insurance – most common (some are mandatory in certain states)

- **Liability insurance** is the MOST IMPORTANT coverage. It protects you if your driving causes injury to others or to other people's property. States set the minimum, but you often may want to purchase more than the minimum.

- **Bodily injury liability (BI)** covers bodily injury (medical expenses of anyone injured in the accident).

- **Property damage liability (PD)** pays for damage you cause to other people's property or public property like a telephone pole, fire hydrant, another car, etc.

- **Uninsured/underinsured motorist protection (UMP)** pays for injuries to you or our passenger(s) caused by a driver who has no insurance or does not have enough insurance to cover your medical losses.

- **Personal injury protection (PIP)** pays for physical injuries (and sometimes lost wages) sustained by you or your passengers while in or around your vehicle, regardless of who is at fault.

Types of Insurance – optional

- **Comprehensive insurance** covers the repair or replacement of theft or parts damaged on your car by vandalism, fire, flood, wind, earthquake, falling objects, riots, hail, damage from trees, and other disasters. This is usually not very expensive and many people do not realize that you may purchase it separate from collision.

- **Collision insurance** pays for the repair or replacement of your car if it is damaged in a collision regardless of who is at fault. This is usually expensive. If you have a car loan, it is often mandatory. If you have an older car, it is probably not worthwhile.

- **Car-rental insurance** pays for you to rent a car if your car is being repaired after an accident. You may want this if you have a long commute or no other way to get to work/school if your car is damaged in an accident.

- **Emergency road service insurance** pays for towing or road service when your car is disable. I personally prefer AAA since they have such a variety of services for a reasonable price.

Example 1 – Quarterly payments

❖ Kwan's annual premium (total payments) for his car insurance cost $1,284.00. If he pays quarterly, there is a $1 per payment surcharge (extra processing fee). What is the quarterly payment?

❖ SOLUTION:

❖ Quarterly is four times per year = 1284/4 = $321

❖ Surcharge for not paying all at once = $1

❖ Quarterly payment = 321 + 1 = **$322**

EXAMPLE 2 – PROPERTY DAMAGE LIABILITY INSURANCE

- Stan has $25,000 worth of property damage liability insurance. He caused an accident that damaged a $2,000 fire hydrant and did $5,600 worth of damage to another car. How much of the damage must Stan pay himself?

- SOLUTION:

- Total Damages = 2,000 + 5,600 = $7,600

- $7,600 < $25,000 worth of insurance Stan has, therefore, the insurance company will pay for all of the damage and Stan pays nothing.

- NOTE: many policies have a deductible and this Stan's insurance covers $25,000 per accident.

EXAMPLE 3 – COLLISION INSURANCE

- PETER HAS COLLISION INSURANCE WITH A $1,000 DEDUCTIBLE. PETER BACKS HIS CAR INTO A LAMPPOST AND CAUSES $4,300 WORTH OF DAMAGE TO THE CAR. HOW MUCH WILL HIS INSURANCE COMPANY HAVE TO PAY?

- SOLUTION:

- SUBTRACT THE DEDUCTIBLE, WHICH IS $1,000, BECAUSE PETER MUST PAY THAT AMOUNT.

- $4,300 - $1,000 = $3,300

- **THE COMPANY MUST PAY $3,300**.

Example 4 - Bodily Injury Insurance

◈ Bob was in an auto accident caused by his negligence. He has 100/300 bodily injury insurance. The three people injured in the accident sued. One person was awarded $140,000, and each of the other two was awarded $75,000. How much does the insurance company pay?

◈ SOLUTION:

◈ Bob has 100/300 BI, so the company only pays $100,000 to the person who was awarded $140,000. The other two injured persons were awarded a total of $150,000. Each was under $100,000. The most Bob's company would pay out for any BI claim is $300,000 total.

◈ Add the awarded amounts = $100,000 + $75,000 + $75,000 = $250,000

◈ Since $250,000 < $300,000, the insurance company pays $250,000. The remaining $40,000 owed to one of the injured is Bob's responsibility.

Example 5 – accident injuries

◈ Rodrigo has a policy with 50/150 BI, $50,000 PD, and $50,000 PIP. He causes an accident in which he hurts seven people in a minivan and four people in his own car, including himself. The total medical bills for all involved equal $53,233. How much does the insurance company pay?

◈ SOLUTION:

◈ Rodrigo is covered by his PIP, which has a limit of $50,000 per person, per accident.

◈ PIP takes care of medical payments without regard to who is at fault.

◈ The company pays the entire $53,233, as long as no individual person requests more than $50,000.

◈ NOTE: bodily injury coverage limits were not relevant in this scenario because there were no lawsuits, just medical claims covered under PIP.

Assignment: pg 229 # 2-8, 12

◆ #2

Rachel has $25,000 worth of property damage insurance. She causes $32,000 worth of damage to a sports car in an accident. (Leave your answers as whole numbers.)

a. How much of the damages will the insurance company have to pay? [   ]

b. How much will Rachel have to pay? [   ]

Assignment: pg 229
2-8, 12 continued

#3

Ronald bought a new car and received these price quotes from his insurance company.

personal injury protection	$234
bodily injury liability	$266
property damage liability	$190
uninsured motorist protection	$11
comprehensive insurance	$344
collision insurance	$410
emergency road service	$12

a. What is the annual premium?

b. What is the semiannual premium?

c. How much less would Ronald's semiannual payments be if he dropped the optional

Assignment: pg 229 # 2-8, 12 continued

◈ #4

Gloria pays her insurance in three installments each year. The first payment is 40% of the annual premium, and each of the next two payments is 30% of the annual premium. If the annual premium is $924, find the amounts of the three payments.

First payment [   ]

Second payment [   ]

Third payment [   ]

Assignment: pg 229 # 2-8, 12 continued

◆ #5

Ruth has decided to drop her collision insurance because her car is getting old. Her total annual premium is $916, of which $170.60 covers collision insurance.

a. What will her annual premium be after she drops the collision insurance?

b. What will her quarterly payments be after she drops the collision coverage?

◆ #6

Gary has $10,000 worth of property damage insurance. He collides with two parked cars and causes $12,000 worth of damage. How much money must Gary pay after the insurance company pays its share?

Assignment: pg 229 # 2-8, 12 continued

◈ #7

Nico has a personal injury protection policy that covers each person in, on, around, or under his car for medical expenses as a result of an accident. Each person can collect up to $50,000. Nico is involved in an accident and three people are hurt. One person has $23,000 of medical expenses, one person has $500 worth of medical expenses, and Nico himself has medical expenses totaling $70,000. How much money must the insurance company pay out for these three people?

◈ #8

Leslie has comprehensive insurance with a $500 deductible on her van. On Halloween her van is vandalized, and the damages total $1,766. Leslie submits a claim to her insurance company.

a. How much must Leslie pay for the repair?

b. How much must the insurance company pay?

Assignment: pg 229 # 2-8, 12 continued

◈ #12

◈ Eric must pay his p dollar annual insurance premium by himself. He works at a job after school.

◈ a) Express how much he must save each month to pay this premium algebraically.

◈ b) If he gets into a few accidents and his company raises his insurance premium 15%, express how much he must save each month to meet this new premium algebraically.