Applications

> *Never lend your car to anyone to whom you have given birth.*
>
> —Erma Bombeck, humor writer

1. Interpret the quote in the context of what you learned about auto insurance in this section. See margin.

2. Rachel has $25,000 worth of property damage insurance. She causes $32,000 worth of damage to a sports car in an accident.
   a. How much of the damages will the insurance company have to pay? $25,000
   b. How much will Rachel have to pay? $7,000

3. Ronald bought a new car and received these price quotes from his insurance company.
   a. What is the annual premium? $1,467
   b. What is the semi-annual premium? $733.50
   c. How much less would Ronald's semi-annual payments be if he dropped the optional collision insurance? $205

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

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. $369.60; $277.20; $277.20

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? $745.40
   b. What will her quarterly payments be after she drops the collision coverage? $186.35

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? $2,000

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? $73,500

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? $500
   b. How much must the insurance company pay? $1,266

TEACH

Exercise 7
Under PIP, the fact that one person has a small claim has no effect on another person's claim that exceeds the coverage limit. The person who exceeds the limit cannot receive funds from the "unused" money from the smaller claims.

9. Felix has $10,000 worth of property damage insurance and a $1,000 deductible collision insurance policy. He had a tire blowout while driving and crashed into a $1,400 fire hydrant. The crash caused $1,600 in damages to his car.
   a. Which insurance covers the damage to the fire hydrant? Property damage
   b. How much will the insurance company pay for the fire hydrant? $1,400
   c. Which insurance covers the damage to the car? Collision
   d. How much will the insurance company pay for the damage to the car? $600

10. Jared's car slides into a stop sign during an ice storm. There is x dollars damage to his car, where $x > 1,000$, and the stop sign will cost y dollars to replace. Jared has $25,000 worth of PD insurance, a $1,000 deductible on his collision and comprehensive insurance, and $50,000 no-fault insurance.
    a. Which insurance covers the damage to the sign? Property damage
    b. How much will his company pay for the stop sign? $y, since y < $25,000
    c. Which insurance covers the damage to his car? Collision
    d. How much will his company pay for the damage to the car? $x − 1,000

11. 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. $\dfrac{p}{12}$
    b. If he gets into a few accidents and his company raises his insurance 15%, express how much he must save each month to meet this new premium algebraically. $1.15\left(\dfrac{p}{12}\right)$

12. Kaylee has 100/300/50 liability insurance and $50,000 PIP insurance. She drives through a stop sign, hits a telephone pole, and ricochets into a minivan with eight people inside. Some are seriously hurt and sue her. Others have minor injuries. Three passengers in Kaylee's car are also hurt.
    a. The pole will cost $7,000 to replace. Kaylee also did $6,700 worth of damage to the minivan. What insurance will cover this, and how much will the company pay? Property damage; $13,700
    b. The minivan's driver was a concert violinist. The injury to his hand means he can never work again. He sues for $4,000,000 and is awarded the money in court. What type of insurance covers this, and how much will the insurance company pay? Bodily injury; $100,000
    c. The minivan's driver (from part b) had medical bills totaling $60,000 from his hospital trip and physical therapy after the accident. What type of insurance covers this, and how much will the insurance company pay? PIP; $50,0
    d. The three passengers in Kaylee's car are hurt and each requires $12,000 worth of medical care. What insurance covers this, and how much will the company pay? PIP; $36,000

13. Julianne currently pays x dollars for her annual premium. She will be away at college for the upcoming year and will only use the car when she is home on vacations. Since she is using the car much less, she is less of a risk and her insurance company offers her a 35% discount for her annual premium. Express algebraically the amount she must save each month to pay the new, lower premium. $\dfrac{x - 0.35x}{12}$ or $\dfrac{0.65x}{12}$

14. The Sundaram family just bought a third car. The annual premium would have been x dollars to insure the car, but they are entitled to a 10% discount since they have other cars insured with the company.
    a. Express their annual premium after the discount algebraically. $x − 0.1x$, or $0.9x$
    b. If they pay their premium quarterly and have to pay a y-dollar surcharge for this arrangement, express their quarterly payment algebraically. $\dfrac{0.9x}{4} + y$

15. Marc currently pays x dollars per year for auto insurance. Next year, his rates are going to increase 15%. If he completes a defensive driving course, the insurance company will lower his rate by d dollars.

  a. Express his annual premium for next year algebraically if he completes the course. $x + 0.15x - d$, or $1.15x - d$

  b. Express his semi-annual premium for next year algebraically if he does not complete the course. $\dfrac{1.15x}{2}$

16. The stem and leaf plot shown is called a back-to-back stem-and-leaf plot, and combines two stem and leaf plots. It gives the semi-annual premiums for the girls and boys in Van Buren High School who currently drive. The numbers between the two vertical lines represent the hundreds (left) and tens (right) digits. The numbers on the extreme left show the units digits for the girls. Notice they are written in ascending order as you move out from the middle. The numbers on the extreme right show the units digits for the boys.

9 8 1 1 1 1	87	1 2 2
3 2	88	2 4 6 7
7 5 4	89	1 3
7 6 6 6 6 5	90	2 7 7 7

1| 87 = $871
87| 1 = $871
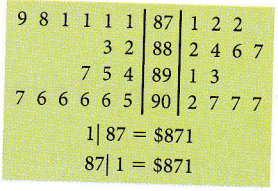
  a. How many girls at Van Buren HS drive? 17

  b. How many boys at Van Buren HS drive? 13

  c. Find the range of the annual premiums for all of the students. $36

17. The following stem-and-leaf plot gives the number of juniors who took a driver education course at Guy Patterson High School over the last two decades. Construct a box-and-whisker plot based on the data. See additional answers.

4	1 2 3 5 5 6
5	1 1 8 8 8 9
6	0 0 0 1 2 5
7	1 1

1| 5 = 15
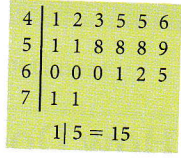
18. Express the boundary for the upper outliers algebraically, using the modified box-and-whisker plot given below. $d + 1.5(d - c)$
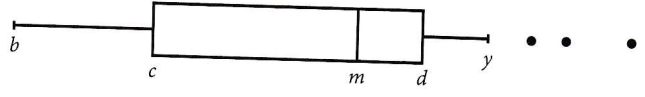
19. A local insurance agent visits the high school and tells the students that his insurance company will give them a 10% discount on liability insurance, PIP, comprehensive insurance, and collision insurance for 3 years if they take a defensive driving course. Maria spends $1,276 on her auto insurance annually.

  a. If she takes the defensive driving course, how much will she save in a 3-year period? $382.80

  b. Maria's defensive driving course costs $55. Does she save enough in 1 year to pay for the course? Yes