

Situation: Tom is the manager at the local Ford dealership. Tom is responsible for purchasing the cars from Ford, approving the terms of the sales, and paying the salespeople.

Note: Ford prices based on national averages in September 2015 found at www.truecar.com

Part 1: Ordering

The table below shows the cost for the dealership to order the cars from Ford (called the invoice price).

Model	Invoice Price
Edge	\$32,000
Explorer	\$34,600
Focus	\$18,400
Mustang	\$35,000
F-150	\$38,000

Tom needs to order 4 Edge, 3 Focus, and 3 Mustang from the Michigan plant where they are made. The vehicles will be transported on 1 semi. Tom's dealership will need to pay \$600 for shipping.

1. Find the total cost to have these vehicles shipped to Tom's dealership.
2. Find the average cost per vehicle being delivered.
3. Write an equation for the cost to fill the semi with x Mustangs and have the cars shipped to the dealership. The semi can hold a maximum of 10 vehicles. Don't forget the shipping cost. Use c for cost and x for the number of Mustangs.
4. Use your equation from #3 to find the cost to ship 8 Mustangs.
5. Use your equation from #3 to find how many Mustangs were delivered if the total shipment cost including shipping equaled \$210,600.

Tom needs to order 5 Explorers and 5 F-150s from the Texas plant where they are made. The vehicles will be transported on 1 semi. Tom's dealership will need to pay \$1,500 for shipping.

6. Find the total cost to have these vehicles shipped to Tom's dealership.
7. Write an equation for the cost to fill the semi with x Explorers and have the SUVs shipped to the dealership. The semi can hold a maximum of 10 vehicles. Don't forget the shipping cost. Use c for cost and x for the number of Explorers.
8. Use your equation from #7 to find how many Explorers can be ordered before the total shipment cost including shipping exceeds \$215,000.

Part 2: Sales

In order to make a profit, Tom needs to sell the cars for more than the dealership purchased the cars. All companies have a Manufacturer's Suggested Retail Price (MSRP) that is listed on the price tag found on new cars (also called the sticker price). The dealership and consumers negotiate a final purchase price.

The table below shows the MSRP from Ford and the average price for the vehicle nationwide.

Model	MSRP	Average Sale Price
Edge	\$34,000	\$31,300
Explorer	\$36,300	\$34,300
Focus	\$19,300	\$17,600
Mustang	\$37,000	\$35,000
F-150	\$41,250	\$34,700

9. Find the percent of the MSRP the Average Sale Price falls for each model AND **Rank** the 5 models from largest discount (lowest percent) to least discount (highest percent).

The table below shows the cost for the dealership to order the cars from Ford (same as page 1).

Model	Invoice Price
Edge	\$32,000
Explorer	\$34,600
Focus	\$18,400
Mustang	\$35,000
F-150	\$38,000

10. Find the profit to the dealership for each model if they are bought at the invoice price and sold at the MSRP.

11. Find the profit to the dealership for selling 7 F-150's, 4 Focus's, and 20 Mustang's at MSRP.

12. Write an equation for the profit on the sale of x F-150's. Use p for profit and x for the F-150's sold.

13. Use your equation from #12 to find the number of F-150's sold if the profit was \$16,250.

14. (Challenge) Dealerships make a profit for setting up financing of a new car with a bank and also receive a bonus from Ford if they reach a sales goal for new cars. Tom's dealership makes 2% of the sales price for each new financing plan they facilitate. Tom's dealership will earn a bonus from Ford of \$20,000 if it meets the goal of 50 new cars in the month of June. The dealership reaches the goal by selling 10 of each of the models in the table at the average sales price and all 50 sales involved financing with a bank. Find the total profit made by the dealership through the Ford bonus and the financing incentives.

Part 3: Payments

The table below shows the average price for the vehicle nationwide.

Also shown in the table are the five salespeople working at the dealership and the number of cars each sold in the month of October.

Model	Average Sale Price	Bill	Jack	Sam	Nancy	Jill
Edge	\$31,300	2	0	1	1	2
Explorer	\$34,300	0	1	2	1	1
Focus	\$17,600	0	1	0	1	0
Mustang	\$35,000	3	0	0	1	1
F-150	\$34,700	1	1	4	1	1

15. Rank the salespeople according to the total sales each person created in the month of October.

16. Each person is paid a salary of \$1,000 per month plus a 5% commission on their sales. Jack and Jill are married (after years of counseling from the hill incident). Find their combined profit for October.

17. Sam decides to become an expert on the F-150 and focus his sales energy on this model. Write an equation that describes Sam's income based on selling x F-150s at the average sale price. The income should include the salary and commission. Use I for income and x for F-150s sold.

18. Use your equation from #17 to find Sam's income in October by selling 4 F-150s.

19. Use your equation from #17 to find how many F-150s Sam sold if his income was \$11,410 for October.

20. Nancy decides to become an expert on the Edge models. Write an equation that describes Nancy's income based on selling an equal number of Edge models at the average sale price. The income should include the salary and commission. Use I for income, x for Edge models sold.

21. Use your equation from #20 to find Nancy's income in October by selling 4 Edge models.

22. Use your equation from #20 to find how many Edge models Nancy sold if her income was \$11,955 for October.