## Lesson 11: Percentage Contexts

Let’s learn about more situations that involve percentages.

### 11.1: Leaving a Tip

Which of these expressions represent a 15% tip on a $20 meal? Which represent the total bill?

$15⋅20$

$20+0.15⋅20$

$1.15⋅20$

$\frac{15}{100}⋅20$

### 11.2: A Car Dealership

A car dealership pays a wholesale price of $12,000 to purchase a vehicle.

1. The car dealership wants to make a 32% profit.
	1. By how much will they mark up the price of the vehicle?
	2. After the markup, what is the retail price of the vehicle?
* 
1. During a special sales event, the dealership offers a 10% discount off of the retail price. After the discount, how much will a customer pay for this vehicle?

#### Are you ready for more?

This car dealership pays the salesperson a bonus for selling the car equal to 6.5% of the sale price. How much commission did the salesperson lose when they decided to offer a 10% discount on the price of the car?

### 11.3: Commission at a Gym

1. For each gym membership sold, the gym keeps $42 and the employee who sold it gets $8. What is the commission the employee earned as a percentage of the total cost of the gym membership?
2. If an employee sells a family pass for $135, what is the amount of the commission they get to keep?

### 11.4: Card Sort: Percentage Situations

Your teacher will give you a set of cards. Take turns with your partner matching a situation with a descriptor. For each match, explain your reasoning to your partner. If you disagree, work to reach an agreement.

### Lesson 11 Summary

There are many everyday situations where a percentage of an amount of money is added to or subtracted from that amount, in order to be paid to some other person or organization:

|  | goes to | how it works |
| --- | --- | --- |
| sales tax | the government | added to the price of the item |
| gratuity (tip) | the server | added to the cost of the meal |
| interest | the lender (or account holder) | added to the balance of the loan, credit card, or bank account |
| markup | the seller | added to the price of an item so the seller can make a profit |
| markdown (discount) | the customer | subtracted from the price of an item to encourage the customer to buy it |
| commission | the salesperson | subtracted from the payment that is collected |

For example,

* If a restaurant bill is $34 and the customer pays $40, they left $6 dollars as a tip for the server. That is 18% of $34, so they left an 18% tip. From the customer's perspective, we can think of this as an 18% increase of the restaurant bill.
* If a realtor helps a family sell their home for $200,000 and earns a 3% commission, then the realtor makes $6,000, because $\left(0.03\right)⋅200,​000=6,​000$, and the family gets $194,000, because $200,​000−6,​000=194,​000$. From the family's perspective, we can think of this as a 3% decrease on the sale price of the home.



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