GETTING READY FOR GRADE 7

GR3.4 Applying Percents

Engage

ESSENTIAL QUESTION

How can you solve percent problems involving discounts and sales tax? To find the amount of discount or tax, first find the percent of the base number. Then add or subtract that percent amount to find the total cost with tax or the sale price after the discount.

Motivate the Lesson

Ask: Have you ever wondered how to find out the cost of something that has a discount? Begin the Explore Activity to find out.

Explore

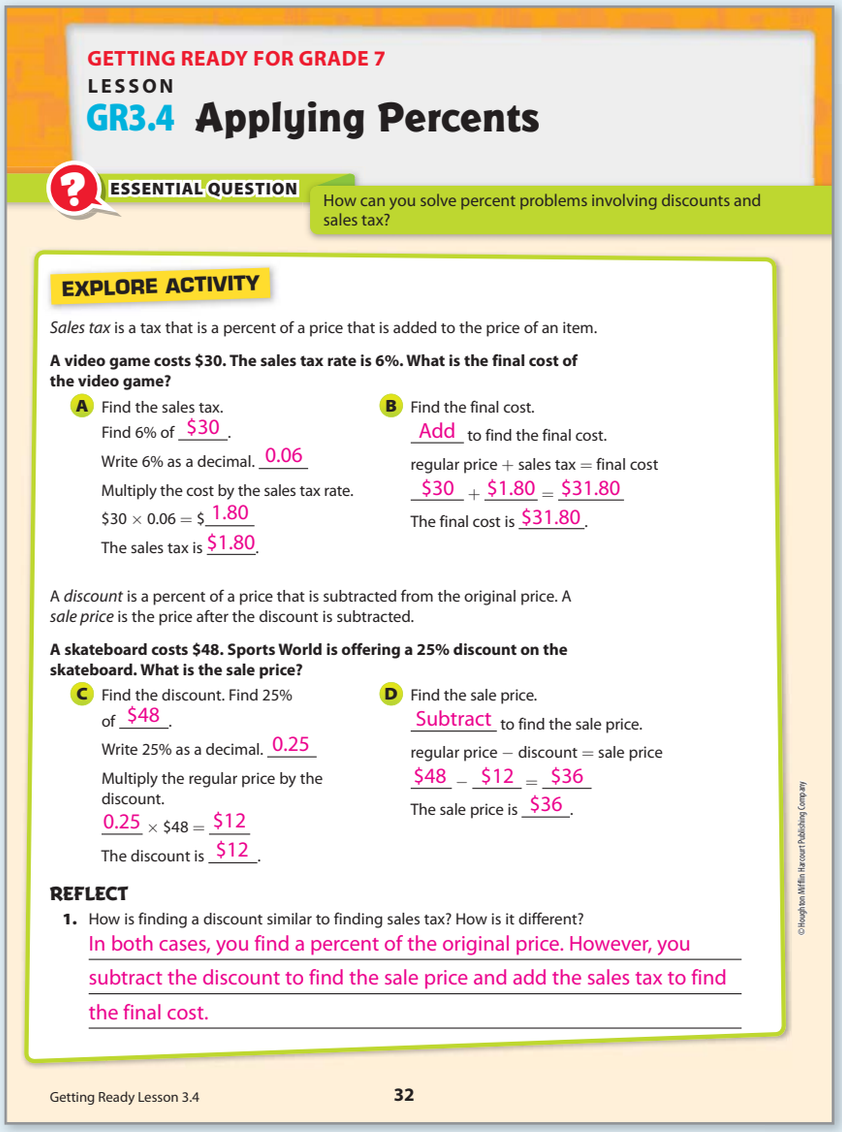
EXPLORE ACTIVITY Connect Vocabulary ELL

The meaning and use of the word *percent* may not be clear to some students. Remind students that *percent* means *per hundred*, so 6% means 6 per 100. As a tax rate, this means 6 cents for every hundred cents, or dollar.

Explain

YOUR TURN Avoid Common Errors

Exercise 3 Some students may think that they only have to pay 15% of $50. Explain that the discount, or amount subtracted, is 15% of $50, and what they have to pay is the amount remaining after the discount is subtracted from the regular, or original, price.



GETTING READY FOR GRADE 7
LESSON
GR3.4 Applying Percents

ESSENTIAL QUESTION
How can you solve percent problems involving discounts and sales tax?

EXPLORE ACTIVITY

Sales tax is a tax that is a percent of a price that is added to the price of an item.

A video game costs $30. The sales tax rate is 6%. What is the final cost of the video game?

A Find the sales tax.
Find 6% of $30.
Write 6% as a decimal. 0.06
Multiply the cost by the sales tax rate.
$30 × 0.06 = $1.80
The sales tax is $1.80.

B Find the final cost.
Add to find the final cost.
regular price + sales tax = final cost
$30 + $1.80 = $31.80
The final cost is $31.80.

A *discount* is a percent of a price that is subtracted from the original price. A *sale price* is the price after the discount is subtracted.

A skateboard costs $48. Sports World is offering a 25% discount on the skateboard. What is the sale price?

C Find the discount. Find 25% of $48.
Write 25% as a decimal. 0.25
Multiply the regular price by the discount.
0.25 × $48 = $12
The discount is $12.

D Find the sale price.
Subtract to find the sale price.
regular price − discount = sale price
$48 − $12 = $36
The sale price is $36.

REFLECT

1. How is finding a discount similar to finding sales tax? How is it different?
In both cases, you find a percent of the original price. However, you subtract the discount to find the sale price and add the sales tax to find the final cost.

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ADDITIONAL PRACTICE

1. Write 8% as a decimal. 0.08
2. Write 30% as a decimal. 0.30 or 0.3
3. A coat cost $30 and the sales tax rate is 6%. What is the amount of the tax? $1.80
4. The original price of a shirt is $20 and the discount is 15%. What is the amount of the discount? $3.00
5. The original price of a book is $10 and the discount is 20%. What is the amount of the discount? $2.00
6. A sandwich cost $2.50 and the sales tax rate is 6%. What is the amount of the tax? $0.15
7. A water bottle cost $12 and the sales tax rate is 7%. What is the final cost? $12.84
8. The original price of a book bag is $24 and the discount is 15%. What is the sales price? $20.40
9. A meal cost $7.80 and the sales tax rate is 5%. What is the final cost? $8.19
10. The original price of a poster is $14 and the discount is 10%. What is the sale price? $12.60

YOUR TURN

2. A graphic novel costs $24. The sales tax is 5%. What is the final cost of the graphic novel? $25.20

3. A jacket regularly costs $50. It is discounted 15%. What is the sale price of the jacket? $42.50

Guided Practice

1. A sports shirt costs $32 plus tax. The sales tax is 8%. What is the sales tax?
Find 8% of 32.
8% = 0.08 *Change 8% to a decimal.*
0.08 × $32 = $2.56 *Multiply to get sales tax.*

2. Find the final cost of the sports shirt.
Regular price + Sales tax = Final Cost
$32 + $2.56 = $34.56

ESSENTIAL QUESTION CHECK-IN

3. How do you find a sale price?
Change the discount percent to a decimal and multiply by the regular price. Then subtract the discount from the regular price.

Independent Practice

Find the sales tax and the final cost.

4. Soccer ball: $18
Sales tax rate: 3%
Sales tax: $0.54
Final cost: $18.54

5. Remote control car: $52
Sales tax rate: 8%
Sales tax: $4.16
Final cost: $56.16

6. Sneakers: $35
Sales tax rate: 7%
Sales tax: $2.45
Final cost: $37.45

Find the discount and the sale price.

7. Tennis racket: $18
Discount percent: 20%
Discount amount: $3.60
Sale price: $14.40

8. Jeans: $26
Discount percent: 10%
Discount amount: $2.60
Sale price: $23.40

9. Lamp: $53
Discount percent: 25%
Discount amount: $13.25
Sale price: $39.75

10. Which costs less, a shirt that regularly sells for $20 that is discounted 10% or a shirt that regularly sells for $24 that is discounted 20%? How do you know?
The discounted $20 shirt; $18 is less than $19.20.

Elaborate

Connect Vocabulary ELL

Some students may confuse *discount* with *sale price*. Explain that a discount is often written as a percent off, such *20% off*, meaning that 20% of the original price will be taken off, or subtracted, to find the (lower) sale price.

Talk About It Summarize the Lesson

Ask: How is the process for finding the sale price after a discount different from the process for finding the total cost, including tax? The amount of a discount is subtracted and the amount of tax is added.

GUIDED PRACTICE Avoid Common Errors

Exercises 1 Some students may think incorrectly that 8% can be written as 0.8 because, for example, 25% is correctly written as 0.25. Explain that you do *not* simply erase the percent sign and put a decimal point in front. Emphasize the meaning of percent means "per hundred".

Evaluate

LESSON QUIZ

Find the sales tax and the final cost.

1. A book with a price of $15 and a sales tax of 4%. $0.60; $15.60
2. A lamp with a price of $30 and a sales tax of 7%. $2.10; $32.10

Find the discount and the sale price.

3. A game with a price of $18 and a discount of 10%. $1.80; $16.20
4. A toy with a price of $9 and a discount of 15%. $1.35; $7.65

H.O.T. FOCUS ON HIGHER ORDER THINKING

1. **Represent Real-World Problems** How could a discount of 25% be expressed in an advertisement as a fraction? Sample answer: $\frac{1}{4}$ off. **DOK 2; MP.3**

2. **Analyze Relationships** The cost of snack shared equally by 4 people is $18.00. They want to leave a tip of 15%. How much should each person pay? Explain. 15% of $18 is $2.70. $18 + $2.70 = $20.70. The total cost of $20.70 shared equally by 4 people is $5.18 (rounded up to the nearest penny). **DOK 3; MP.4**

3. **Communicate Mathematical Ideas** Can the sale price of an item ever be less than the amount of the discount? Explain. Yes, for example, if the original price is $100 and the discount is 75%, then the discount amount is $75 and the sale price is $100 − $75 = $25. $25 < $75. **DOK 3; MP.3**

4. **Analyze Relationships** The final cost for a book is $10.50. The price of the book is $10. What is the tax rate? Explain. The tax amount is $0.50. To find the rate, divide $0.50 by $10, which gives a rate of 0.05 or 5%. **DOK 3; MP.4**