English Spanish

4.3 Discounts and Markups

Essential Question How can you find discounts and markups efficiently?

1 ACTIVITY: Comparing Discounts

Work with a partner. The same pair of sneakers is on sale at three stores. Which one is the best buy?

a. Regular Price: $45

b. Regular Price: $49

c. Regular Price: $39

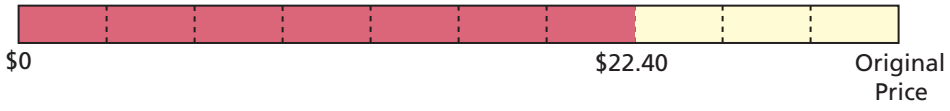
a.

b.

c.

2 ACTIVITY: Finding the Original Price

Work with a partner. You buy a shirt that is on sale for 30% off. You pay $22.40. Your friend wants to know the original price of the shirt. How can your friend find the original price?



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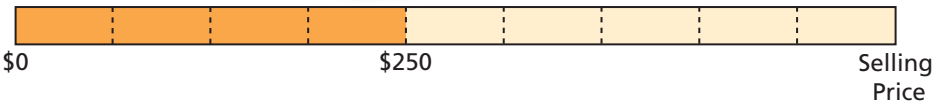
3 ACTIVITY: Calculating Markup

You own a small jewelry store. You increase the price of the jewelry by 125%.

Work with a partner. Use a model to estimate the selling price of the jewelry. Then use a calculator to find the selling price.

a. Your cost is $250.



b. Your cost is $50.

c. Your cost is $20.

What Is Your Answer?

4. IN YOUR OWN WORDS How can you find discounts and markups efficiently? Give examples of each.

Practice Use what you learned about discounts and markups to complete Exercises 4, 9, 14, and 18–20 on pages 176 and 177.

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4.3 Lesson

Check It Out
Lesson Tutorials
BigIdeasMath.com

Key Vocabulary
discount, *p. 174*
markup, *p. 174*

Key Ideas

Discounts

A **discount** is a decrease in the original price of an item.

Markups

To make a profit, stores charge more than what they pay. The increase from what the store pays to the selling price is called a **markup**.

EXAMPLE 1 Finding a Sale Price

The original price of the shorts is $35. What is the sale price?

Method 1: First, find the discount. The discount is 25% of $35.

$a = p \cdot w$ Write percent equation.

$= 0.25 \cdot 35$ Subsitute 0.25 for p and 35 for w.

$= 8.75$ Multiply.

Next, find the sale price.

sale price = original price − discount

= 35 − 8.75

= 26.25

∴ The sale price is $26.25.

Method 2: First, find the percent of the original price.

$100\% - 25\% = 75\%$

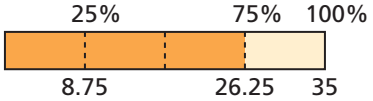
Next, find the sale price.

sale price = 75% of $35

$= 0.75 \cdot 35$

$= 26.25$

∴ The sale price is $26.25. **Check**



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Study Tip
A 25% discount is the same as paying 75% of the original price.

On Your Own

Now You're Ready
Exercises 4–8

1. The original price of a skateboard is $50. The sale price includes a 20% discount. What is the sale price?

Multi-Language Glossary at BigIdeasMath.com.

English Spanish

EXAMPLE 2 Finding an Original Price

What is the original price of the shoes?

The sale price is $100\% - 40\% = 60\%$ of the original price.

Answer the question: 33 is 60% of what number?

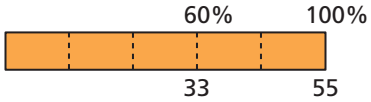
$a = p \cdot w$ Write percent equation.

$33 = 0.6 \cdot w$ Substitute 33 for a and 0.6 for p.

$55 = w$ Divide each side by 0.6.

∴ The original price of the shoes is \$55.

Check



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EXAMPLE 3 Finding a Selling Price

A store pays \$70 for a bicycle. The percent of markup is 20%. What is the selling price?

First, find the markup. The markup is 20% of \$70.

$a = p \cdot w$ Write percent equation.

$= 0.20 \cdot 70$ Substitute 0.20 for p and 70 for w.

$= 14$ Multiply.

Next, find the selling price.

selling price	=	cost to store	+	markup
	=	70	+	14
	= 84			

∴ The selling price is \$84.

On Your Own

Now You're Ready
Exercises 9–20

2. The discount on a DVD is 50%. It is on sale for \$10. What is the original price of the DVD?
3. A store pays \$75 for an aquarium. The markup is 20%. What is the selling price?
4. Solve Example 3 using a different method.

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4.3 Exercises

Check It Out
Help with Homework
BigIdeasMath.com

Vocabulary and Concept Check

1. **WRITING** Describe how to find the sale price of an item that has been discounted 25%.
2. **WRITING** Describe how to find the selling price of an item that has been marked up 110%.
3. **REASONING** Which would you rather pay? Explain your reasoning.

   a. 6% tax on a discounted price or 6% tax on the original price

   b. 30% markup on a $30 shirt or $30 markup on a $30 shirt

Practice and Problem Solving

Copy and complete the table.

		Original Price	Percent of Discount	Sale Price
1	4.	$80	20%	
	5.	$42	15%	
	6.	$120	80%	
	7.	$112	32%	
	8.	$69.80	60%	
2	9.		25%	$40
	10.		5%	$57
	11.		80%	$90
	12.		64%	$72
	13.		15%	$146.54
	14.	$60		$45
	15.	$82		$65.60
	16.	$95		$61.75

17. **YOU BE THE TEACHER** The cost to a store for an MP3 player is $60. The selling price is $105. A classmate says that the markup is 175% because $\frac{\$105}{\$60} = 1.75$. Is your classmate correct? If not, explain how to find the correct percent of markup.

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Find the cost to store, percent of markup, or selling price.

18. Cost to store: $70
Markup: 10%
Selling price: ____

19. Cost to store: ____
Markup: 75%
Selling price: $63

20. Cost to store: $75
Markup: ____
Selling price: $180

21. SCOOTER The scooter is on sale for 90% off the original price. Which of the methods can you use to find the sale price? Which method do you prefer? Explain.

Multiply $45.85 by 0.9.

Multiply $45.85 by 0.1.

Multiply $45.85 by 0.9, then add to $45.85.

Multiply $45.85 by 0.9, then subtract from $45.85.

22. GAMING You are shopping for a video game system.

a. At which store should you buy the system?

b. Store A has a weekend sale. How can this change your decision in part (a)?

Store	Cost to Store	Markup
A	$162	40%
B	$155	30%
C	$160	25%

23. STEREO A $129.50 stereo is discounted 40%. The next month, the sale price is discounted 60%. Is the stereo now "free"? If not, what is the sale price?

24. CLOTHING You buy a pair of jeans at a department store.

a. What is the percent of discount to the nearest percent?

b. What is the percent of sales tax to the nearest tenth of a percent?

c. The price of the jeans includes a 60% markup. After the discount, what is the percent of markup to the nearest percent?

Department Store

Jeans	39.99
Discount	-10.00
Subtotal	29.99
Sales Tax	1.95
Total	31.94

Thank You

25. Critical Thinking You buy a bicycle helmet for $22.26, which includes 6% sales tax. The helmet is discounted 30% off the selling price. What is the original price?

Fair Game Review What you learned in previous grades & lessons

Evaluate. SKILLS REVIEW HANDBOOK

26. 2000(0.085)

27. 1500(0.04)(3)

28. 3200(0.045)(8)

29. MULTIPLE CHOICE Which measurement is greater than 1 meter? SECTION 3.6

(A) 38 inches (B) 1 yard (C) 3.4 feet (D) 98 centimeters