

Objective Percent Increase and Percent Decrease

Warm-Up



Determine each product, rounding to the nearest penny. Describe whether the product represents an increase or decrease.

1. $\$250 \times 2.5 = y$

Sample worked out



$$\begin{array}{r}
 \$250 \times 2.5 = y \\
 | \qquad \qquad | \\
 \text{initial value} \quad \text{value multiplier} \\
 250 \times 2.5 = \mathbf{625} \longleftarrow \mathbf{625 \text{ is increase}}
 \end{array}$$

2. $y = \$56 \times 2.9$

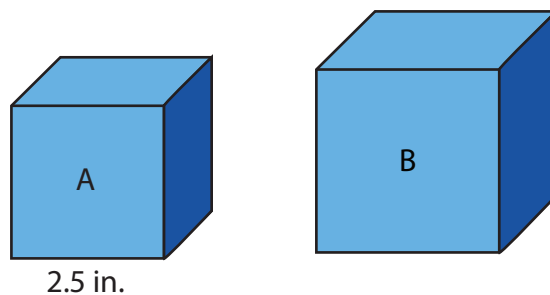
3. $\$200 \times 2.2 = y$

4. $\$375 \times 0.99 = y$



It is common to talk about percent increases and percent decreases when talking about money. But you can also use them when thinking geometrically.

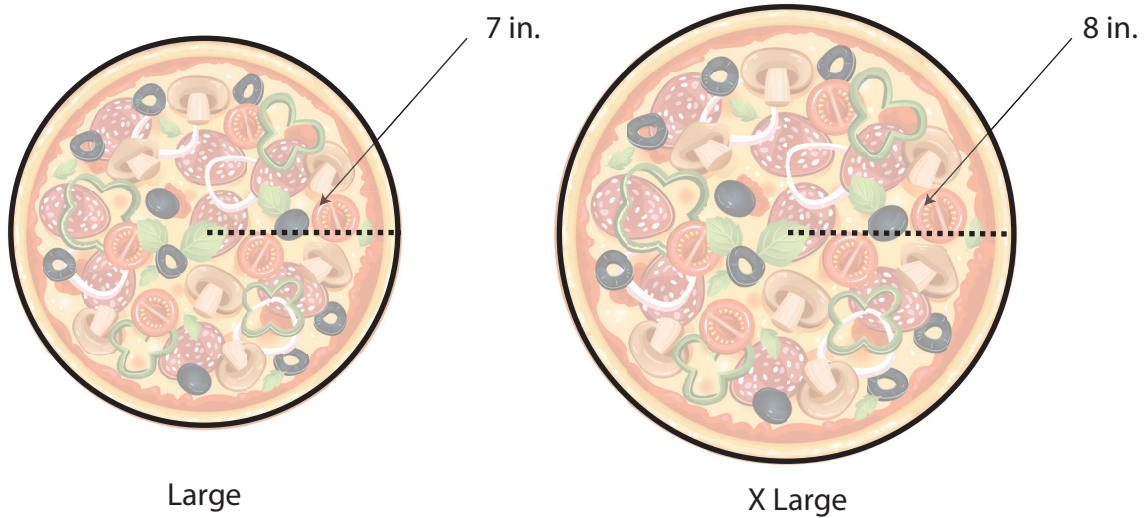
1. Consider the cubes shown. The side lengths of Cube B are each 20% greater than the side lengths of Cube A.



a. Determine the surface area of each cube. Show your work.

b. Determine the volume of each cube. Show your work.

2. What is the percent decrease in the amount of pizza, from the extra large to the large? Round to the nearest percent. Explain how you determined your answer.



3. Elinor wanted to order an 18-inch hoagie, which cost \$7.99. The sandwich shop is out of 18-inch buns. They only have 12-inch buns.

a. What should be the percent decrease in cost of the hoagie?

b. What should the new cost be?

Show You KNOW

Gas Prices

The table shows the average price of gasoline per gallon in the U.S. for the years 2000 through 2015.

Year	Price (\$ per gallon)	% Increase or Decrease
2000	2.02	
2001	1.91	
2002	1.75	
2003	2.01	
2004	2.32	
2005	2.74	
2006	3.00	
2007	3.16	
2008	3.61	
2009	2.58	
2010	3.02	
2011	3.75	
2012	3.80	
2013	3.62	
2014	3.40	
2015	2.45	

1. Complete the table by determining each yearly percent increase or decrease in the price of gasoline. Round to the nearest percent.

2. Casey added together all of the increases from 2000 to 2005 and subtracted the decreases. She concluded that there was about a 35% increase in gas price from 2000 to 2005.

Is Casey correct? Explain why or why not.



LESSON 4.4b

More Ups and Downs



Objective

Percent Increase and Percent Decrease

Practice

Calculate each percent increase or percent decrease. Round to the nearest whole percent if necessary.

1. original amount: 30, new amount: 45
2. original amount: 12, new amount: 16
3. original amount: 17, new amount: 21
4. original amount: 85, new amount: 56
5. original amount: 48, new amount: 37
6. original amount: 124, new amount: 76

Use the given information to answer each question.

7. A dress that normally sells for \$72 is on sale for \$45. What is the percent decrease in the price?
8. A home purchased for \$120,000 in 2012 is sold for \$156,000 in 2015. What is the percent increase in the price?
9. The CD Warehouse purchases CDs for \$6 each and sells them for \$9 each. What is the percent increase in the price?
10. The CD Warehouse is having a clearance sale. A CD player that originally sells for \$60 is now priced at \$36. What is the percent decrease in the price?
11. The local high school sold 1914 tickets this year to its spring musical. That was 174 more tickets sold than last year. What is the percent increase in the number of tickets sold?
12. Ken's heart rate went from 74 beats per minute while resting to 148 beats per minute while exercising. What is the percent increase in his heart rate?