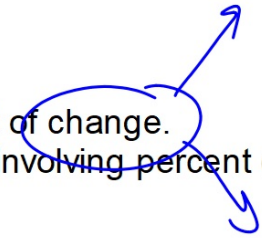
Algebra 1 2.7

Find the percent of change.
Solve problems involving percent of change



50% $\frac{50}{100} = \frac{1}{2}$

increase +
decrease −
percent

↓

%

$\frac{7}{25} = \frac{14}{50} = \frac{28}{100}$ 28%

25% $= \frac{25}{100}$

28%

$$\frac{\text{Percent}}{100} = \frac{\text{Change (part)}}{\text{Original (whole)}}$$

Example 1 Percent of Change

Determine whether each percent of change is a percent of *increase* or a percent of *decrease*. Then find the percent of change.

a. original: 20
final: 23

b. original: 25
final: 17

15% I $\frac{3}{20} = \frac{p}{100}$

$20p = 300$

$\frac{20p}{20} = \frac{300}{20}$

D $\frac{8}{25} = \frac{x}{100}$

$25x = 800$

$\frac{25x}{25} = \frac{800}{25}$

$x = 32\%$

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1A. original: 66
new: 30

$\frac{36}{66} = \frac{x}{100}$

54.54

55% D

1B. original: 9.8
new: 12.1

I $\frac{2.3}{9.8} = \frac{x}{100}$

$230 = 9.8x$

$\frac{230}{98} = \frac{9.8x}{9.8}$

23.5%

1C. original: 24
new: 40

I

$\frac{16}{24} = \frac{x}{100}$

$24x = 1600$

$\frac{24x}{24} = \frac{1600}{24}$

66.66 67%

1D. original: 500
new: 131

$\frac{369}{500} = \frac{x}{100}$

74% D

$500x = 36900$

$\frac{500x}{500} = \frac{36900}{500}$

State whether each percent of change is a percent of *increase* or a percent of *decrease*. Then find the percent of change. Round to the nearest whole percent.

1. original: 78
   new: 125

2. original: 41
   new: 24

3. original: 6 candles
   new: 8 candles

4. original: 35 computers
   new: 32 computers

Real-World Example 2 Percent of Change

CRUISE **The total number of passengers on cruise ships increased 10% from 2007 to 2009. If there were 17.22 million passengers in 2009, how many were there in 2007?**

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2. **TUITION** A recent percent of increase in tuition at Northwestern University, in Evanston, Illinois, was 5.4%. If the new cost is $33,408 per year, find the original cost per year.

42. RECREATIONAL SPORTS In 1995, there were 73,567 youth softball teams. By 2007, there were 86,049. Determine the percent of increase.