

Percent Increase or Decrease Worksheet

Decide whether the change is an increase or decrease $\uparrow\downarrow$ and find the

percent using the formula $\frac{\text{change}}{\text{original}}$.

1. Before: 10
After: 12

2. Before: 15
After: 12

3. Before: 75
After: 60

4. Before: 110
After: 143

5. Before: 90
After: 200

6. Before: 260
After: 160

7. 1994 Cost: \$171.33
1995 Cost: \$201.59

8. Regular Price: \$31.99
Sale Price: \$22.39

9. Start Price: \$521.73
End Price: 413.68

10. 2004 Cost: \$18.77
2005 Cost: \$19.17

11. Original Number: 45
New Number: 72

12. Original Number: 45
New Number: 18

Percent of Change – Given the %, Find the Missing Number

Use the $\frac{\text{change}}{\text{original}} = \frac{\%}{100}$ proportion, fill in what you know and solve for the missing number.

1. Last year the 6th grade had 350 students. This year the number decreased 36%. How many students are in this year's 6th grade class?
2. Enrollment in the Ski/Snowboard Club increased by 30% this year. There are now 182 students in the club. How many students were there last year?
3. The Game Stop is having a sale and all games are reduced by 55%. If a game is now \$29.99, what was the original price? Round your answer to the nearest cent.
4. AYSO has 18 8th grade boys' teams this year, but this is a 28% (rounded to the nearest whole number) decrease from the prior year. How many 8th grade teams were there last year?

Key

Percent Increase or Decrease Worksheet

Decide whether the change is an increase or decrease (\uparrow / \downarrow) and find the

percent using the formula $\frac{\text{change}}{\text{original}} = \frac{\%}{100}$ $\frac{\Delta}{\text{ORIG}} = X$

1. Before: 10 \uparrow
After: 12

$$\frac{\Delta}{\text{ORIG}} \quad \frac{2}{10} = X$$
$$X = .2$$
$$X = 20\% \uparrow$$

2. Before: 15 \downarrow
After: 12

$$\frac{\Delta}{\text{ORIG}} \quad \frac{3}{15} = X$$
$$X = 20\% \downarrow$$

3. Before: 75 \downarrow
After: 60

$$\frac{\Delta}{\text{ORIG}} \quad \frac{15}{75} = X$$
$$X = 20\% \downarrow$$

4. Before: 110
After: 143

$$\frac{\Delta}{\text{ORIG}} \quad \frac{33}{110} = X$$
$$X = 30\% \uparrow$$

5. Before: 90 \uparrow
After: 200

$$\frac{\Delta}{\text{ORIG}} \quad \frac{110}{90} = X$$
$$X = 122\% \uparrow$$

6. Before: 260 \downarrow
After: 160

$$\frac{\Delta}{\text{ORIG}} \quad \frac{100}{260} = X$$
$$X = 38\% \downarrow$$

7. 1994 Cost: \$171.33
1995 Cost: \$201.59

$$\frac{\Delta}{\text{ORIG}} \uparrow \quad \frac{30.26}{171.33} = X$$
$$X = 18\% \uparrow$$

8. Regular Price: \$31.99
Sale Price: \$22.39

$$\frac{\Delta}{\text{ORIG}} \quad \frac{31.99 - 22.39}{31.99} = X$$
$$X = 0.300093179$$
$$X = 30\% \downarrow$$

9. Start Price: \$521.73
End Price: 413.68 \downarrow

$$\frac{\Delta}{\text{ORIG}} \quad \frac{108.05}{521.73} = X$$
$$X = 21\% \downarrow$$

10. 2004 Cost: \$18.77
2005 Cost: \$19.17

$$\frac{\Delta}{\text{ORIG}} \uparrow \quad \frac{0.40}{18.77} = X$$
$$X = 2\% \uparrow$$

11. Original Number: 45
New Number: 72

$$\frac{\Delta}{\text{ORIG}} \uparrow \quad \frac{27}{45} = X$$
$$X = 60\% \uparrow$$

12. Original Number: 45
New Number: 18

$$\frac{\Delta}{\text{ORIG}} \quad \frac{27}{45} = X$$
$$X = 60\% \downarrow$$

Key

Percent of Change – Given the %, Find the Missing Number

Use the $\frac{\text{change}}{\text{original}} = \frac{\%}{100}$ proportion, fill in what you know and solve for the missing number.

1. Last year the 6th grade had 350 students. This year the number decreased 36%. How many students are in this year's 6th grade class?

Last year 350
This year X ↓

$$\frac{350-X}{350} = \frac{36}{100}$$

$$\begin{array}{r} 350-X = 126 \\ -350 \quad -350 \\ \hline -X = -224 \\ \hline \quad -1 \quad -1 \end{array}$$

X = 224 students

2. Enrollment in the Ski/Snowboard Club increased by 30% this year. There are now 182 students in the club. How many students were there last year?

Last Year = X ↑
This year = 182 ↑

$$\frac{182-X}{X} = \frac{30}{100}$$

$$\begin{array}{r} 3X = 10(182-X) \\ 3X = 1820 - 10X \\ +10X \quad +10X \\ \hline 13X = 1820 \\ \hline \quad 13 \quad 13 \end{array}$$

X = 140 students

3. The Game Stop is having a sale and all games are reduced by 55%. If a game is now \$29.99, what was the original price? Round your answer to the nearest cent.

Original price = X ↓
Sale Price = 29.99 ↓

$$\frac{X-29.99}{X} = \frac{55}{100}$$

$$\begin{array}{r} 20(X-29.99) = 11X \\ 20X - 599.80 = 11X \\ -20X \quad -20X \\ \hline -599.80 = -9X \\ \hline \quad -9 \quad -9 \end{array}$$

X = \$66.64 was the original price.

4. AYSO has 18 8th grade boys' teams this year, but this is a 28% (rounded to the nearest whole number) decrease from the prior year. How many 8th grade teams were there last year?

Last year = X ↓
This year = 18 ↓

$$\frac{X-18}{X} = \frac{28}{100}$$

$$\begin{array}{r} 7X = 25(X-18) \\ 7X = 25X - 450 \\ -25X \quad -25X \\ \hline -18X = -450 \\ \hline \quad -18 \quad -18 \end{array}$$

X = 25 teams last year