

Algebra I
Lesson 2.10 – Percent Increase and Decrease
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When a value of a home increases, owners like to look at the increase as a percent change. When college tuition rises, we hear about the increase in the news as a percent change. Truth is, it is a good idea to understand what is being reported, and that way we know if it is good news or bad news for us!

Vocabulary:

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| Percent change – an increase or decrease given as a percent of the original amount | $percent\ change = \frac{amount\ of\ change}{original\ amount} \cdot 100$ change is expressed in a percent |
| Percent increase – the amount of change gets bigger | |
| Percent decrease – the amount of change gets smaller | |
| Discount – the amount that the original price is reduced | Discount = % of original price Final price = original price – discount |
| Markup – the amount that the original price is raised | Markup = % of original value Final price = original value + markup |

Find the percent change; is it an increase or decrease?

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| $\begin{aligned} & \text{from 25 to 38} \\ percent\ change &= \frac{38 - 25}{25} \\ &= \frac{13}{25} \\ &= 0.52(100) \\ &= 52\% \text{ increase} \end{aligned}$ | <ol style="list-style-type: none"> 1. use the equation and solve 2. now don't forget to multiply by 100 for a percentage! 3. are the numbers increasing or decreasing? |
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Finding the result of a percent increase or decrease:

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| <p>Find the result when 30 is increased by 15%</p> $\begin{aligned} markup &= \% \text{ of original price} \\ markup &= 15\% \times 30 \\ markup &= .15(30) \\ &= 4.5 \\ final\ number &= original\ number + markup \\ &= 30 + 4.5 \\ &= 34.5 \end{aligned}$ | <ol style="list-style-type: none"> 1. For an increase we can follow the equations for a markup. remember "of" translates to multiply 2. WATCH OUT!!! NEVER EVER NEVER MULTIPLY BY A %, CHANGE TO A DECIMAL! 3. follow the equations and solve |
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| Find the result when 72 is increased by 25% | Find the result when 10 is decreased by 40% |
| A \$220 bicycle was on sale for 60% off. Find the sale price | Ray paid \$12 for a \$15 T-shirt. What was the percent discount? |
| Find the percent change; is it an increase or decrease <i>from 200 to 110</i> | <i>from 25 to 30</i> |
| <i>from 80 to 115</i> | Concert tickets cost \$15 when bought in advance. Bought at the door the price is \$22. What is the percent change in price? |