Sales Tax, Tips, and Markup

Percent Proportion: \( \frac{\text{part}}{\text{whole}} = \frac{\%}{100} \)

<table>
<thead>
<tr>
<th>Definitions</th>
<th>Examples</th>
<th>Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Tax: additional amount of money charged on items purchased, added to total</td>
<td>Exercise Equipment: $140 Sales Tax: 5.75% Total Cost? ( \frac{x}{140} = \frac{5.75}{100} ) cross multiply and divide ( 100x = 5.75(140) \rightarrow 100x = 805 \rightarrow x = 8.05 ) Sales Tax = $8.05 Total = $140 + $8.05 = $148.05</td>
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<tr>
<td>Tip: amount of money in return for a service, added to total</td>
<td>Restaurant Bill: $35 Tip: 15% Total Bill? ( \frac{x}{35} = \frac{15}{100} ) cross multiply and divide ( 100x = 15(35) \rightarrow 100x = 525 \rightarrow x = 5.25 ) Tip = $5.25 Total = $35 + $5.25 = $40.25</td>
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<td>Markup: amount of increase, added to total</td>
<td>GPS: $56 Markup: 25% Total Cost? ( \frac{x}{56} = \frac{25}{100} ) cross multiply and divide ( 100x = 25(56) \rightarrow 100x = 1400 \rightarrow x = 14 ) Markup = $14 Total = $56 + $14 = $70</td>
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Directions: Find the total cost to the nearest cent. You may solve these problems however you choose, you do not have to use the proportion.

1. $2.95 notebook, 5% tax
2. $28 lunch, 15% tip
3. $58 bill, 20% tip
4. $43 dinner, 18% gratuity
5. $270 bicycle, 24% markup
6. $1,500 computer, 7% tax
7. $46 shoes, 2.9% tax
8. $450 painting, 45% markup
9. $8.50 yoga mat, 75% markup
10. A restaurant bill comes to $28.35. Find the total cost if the tax is 6.25% and a 20% tip.
7.RP: Ratios and Proportional Relationships

**Discount**

<table>
<thead>
<tr>
<th>Definition</th>
<th>Example</th>
<th>Work</th>
</tr>
</thead>
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| Discount: amount by which the regular price of an item is reduced, subtracted from total | DVD: $22 Discount: 25% Total Cost: | \[
\frac{\text{part}}{\text{whole}} = \frac{25}{100}\] cross multiply and divide 100x = 25(22) 100x = 550 \[x = \$5.50\] Discount = $5.50 Total = $22 - $5.50 = $16.50 |

**Directions:** Find the total cost to the nearest cent. You may solve these problems however you choose, you do not have to use the proportion.

1. $64 jacket, 20% discount
2. $1,200 TV, 10% discount
3. $7.50 admission, 20% off
4. $4.30 makeup, 40% discount
5. $65 backpack, 25% discount
6. $90 skates, 9% discount
7. $4.50 lotion, 50% discount
8. $180 tennis racket, 15% discount
9. $40 sweater, 33% discount
10. Mr. Robinson bought a novel at a bookstore on sale for 20% off. Mr. Chang bought the same novel at a different bookstore for 10% its regular price of $25. Which person received the better discount?
Percent of Change: the change in quantity to the original amount.

Original Amount: the starting amount

Step 1: Identify the change as an increase or decrease.
Step 2: Find the amount of change by subtracting.
Step 3: Complete the proportion.

<table>
<thead>
<tr>
<th>Example</th>
<th>Type of Change</th>
<th>Work</th>
</tr>
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</table>
| Find the percent of change in the cost of gasoline from 1970, $1.30 to 2010, $2.95. | Increase       | 1. Amount of Change: 
2.95 – 1.30 = 1.65  
2. Proportion: \[
\frac{1.65}{1.30} = \frac{x}{100}
\]  
3. Cross Multiply and Divide: 
\[1.30x = 100(1.65) \quad \rightarrow 1.30x = 165\]  
\[x = 126.9\]  
4. The cost of gasoline increased by about 127% from 1970 to 2010. |
| Find the percent of change in the cost of a $280 DVD player on sale for $220. | Decrease       | 1. Amount of Change: 
280 – 220 = 60  
2. Proportion: \[
\frac{60}{280} = \frac{x}{100}
\]  
3. Cross Multiply and Divide: 
\[280x = 100(60) \quad \rightarrow 280x = 6000\]  
\[x = 21.4\]  
4. The price of the DVD player decreased by about 21% |
Percent of Change

\[
\text{Percent of Change: } \frac{\text{amount of change}}{\text{original amount}} = \% \quad \frac{}{100}
\]

Find each percent of change. Round to the nearest whole percent if necessary. State whether the percent of change is an increase or decrease.

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<td>1.</td>
<td>15 yards to 18 yards</td>
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<tr>
<td>3.</td>
<td>$15.60 to $11.70</td>
</tr>
<tr>
<td>5.</td>
<td>1.6 hours to 0.95 hour</td>
</tr>
<tr>
<td>7.</td>
<td>30 inches to 24 inches</td>
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<td>9.</td>
<td>Jessie weighed her cat one month ago, and the cat weighed 10 pounds. Today when she weighed her cat, her cat weighed 13.75 pounds. What is the percent of change?</td>
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