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| **100% of something means *all* of it.     1% of something means 1/100 of it.** |
| To calculate a percentage of a quantity, we use the same method as when we calculate a fractional part of that quantity because *percent* simply means a hundredth part. Therefore, percentages are just fractions. |
| **How much is 1% of 200 kg?**  This means how much is 1/100 of 200 kg? It is simply 2 kg. You just divide by 100 to find a hundredth part!  **To find 1% of something (1/100 of something), divide by 100.**  Remember how to divide by 100 mentally: Just move the decimal point two places to the left. For example, 1% of 540 is 5.4. And 1% of 8.30 is 0.083. |
| **To find 10% of some quantity, divide by 10.**  Why does that work? 10% is 10/100. And 10/100 is equal to 1/10. So we just find 1/10 of the For example, 10% of 340 people is 34 people. Similarly, 10% of $2.30 is $0.23. (To divide by 10 mentally, just move the decimal point one place to the left.) |

1. Find 10% of these numbers.

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| **a.** 900   \_\_\_\_\_\_\_ | **b.** 160   \_\_\_\_\_\_\_ | **c.** 50   \_\_\_\_\_\_\_ |  |

1. Find 1% of these numbers.

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| **a.** 900   \_\_\_\_\_\_\_ | **b.** 6,800   \_\_\_\_\_\_\_ | **c.** 550   \_\_\_\_\_\_\_ |  |

1. If 1% of Cindy’s salary is $23, how much is her salary?
2. Ten percent of the cost of a pool is $430. How much does the pool cost?

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| **To find 2% of a quantity, first find 1% of it, then double that.**  For example, let’s find 2% of $6. Since 1% of 6 is $0.06, then 2% of 6 is $0.12. |
| **Can you think of a way to find 20% of a number?** (Hint: Start with finding 10% of the number.)  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Fill in the table. Use mental math.

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| **percentage / number** | **400** | **60** | **78** | **8** | **4.1** |
| 1% of the number |  |  |  |  |  |
| 2% of the number |  |  |  |  |  |
| 10% of the number |  |  |  |  |  |
| 20% of the number |  |  |  |  |  |

1. Fill in this guide for using mental math with percent:

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| **Mental Math and Percent of a Number** | |
| **50% is  . To find 50% of a number, divide by \_\_\_\_\_\_.**  **10% is . To find 10% of a number, divide by \_\_\_\_\_\_.**  **1% is . To find 1% of a number, divide by \_\_\_\_\_\_.** | |  | | --- | | **50% of 244 is \_\_\_\_\_\_\_.** | | **10% of 47 is \_\_\_\_\_\_\_\_.** | | **1% of 530 is \_\_\_\_\_\_\_\_** **.** | |
| To find 20%, 30%, 40%, 60%, 70%, 80%, or 90% of a number,   * First find \_\_\_\_\_\_\_\_\_% of number and * then multiply by 2, 3, 4, 6, 7, 8, or 9. | 10% of 120 is \_\_\_\_\_\_\_.  30 % of 120 is \_\_\_\_\_\_\_.  60 % of 120 is \_\_\_\_\_\_\_. |

1. Find percentages. Use mental math.

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| **a.** 10% of 60 kg   \_\_\_\_\_\_\_\_      20% of 60 kg   \_\_\_\_\_\_\_\_ | **b.** 10% of $14  \_\_\_\_\_\_\_\_      30% of $14  \_\_\_\_\_\_\_\_ | **c.** 10% of $25 \_\_\_\_\_\_   70% of $25 \_\_\_\_\_\_ |

1. David pays a 20% income tax on his $2,100 salary.   
   How many dollars is the tax?

How much money does he have left after paying the tax?

1. Identify the errors that these children made. Then find the correct answers.

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| **a.** Find 90% of $55.      Peter’s solution:      10% of $55 is $5.50      So subtract 100% − $5.50 = $94.50 |

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| http://www.homeschoolmath.net/teaching/percent/images/tricks-text.gif | |  |  |  |  | | --- | --- | --- | --- | | |  | | --- | | **90% of a quantity**  First find 10% of the quantity and then subtract that 10% from 100% of it. | | |  | | --- | | **25% of a quantity**  25% is the same as 1/4. So to find 25% of a quantity, divide it by 4. | | | |
| |  | | --- | | **12% of a quantity**  First find 10% of it. Then find 1% of it, and use that 1% to find 2% of it. Then, add the 10% and the 2%. | | |  | | --- | | **75% of a quantity**  75% is 3/4. First find 1/4 of the quantity and multiply that by 3. | |

1. Find percentages. Use mental math.

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| **a.** 25% of 48 mi   \_\_\_\_\_\_\_      75% of 48 mi   \_\_\_\_\_\_\_\_ | **b.** 10% of $80 \_\_\_\_\_\_\_\_\_   90% of $80 \_\_\_\_\_\_\_\_ | **c.** 10% of 65 g \_\_\_\_\_\_\_\_   80% of 65 g \_\_\_\_\_\_\_\_ |

1. Find percentages of the quantities.

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| **a.** 50% of 26 in.  \_\_\_\_\_\_\_ | **b.** 25% of 40 ft  \_\_\_\_\_\_\_ | **c.** 75% of $56 \_\_\_\_\_\_\_ |

1. Fill in the mental math method for finding 12% of $65.   
     
   10% of $65 is $\_\_\_\_\_\_\_\_.    1% of $65 is $\_\_\_\_\_\_\_\_\_.    2% of $65 is $\_\_\_\_\_\_\_\_\_.   
     
   Now, add to get 12% of $65:   $\_\_\_\_\_\_\_\_\_  +  $\_\_\_\_\_\_\_\_\_  =  $\_\_\_\_\_\_\_\_\_
2. On her cell phone bill, Hannah noticed that of the 340 text messages   
   that she sent last month, 15% were sent at the cheaper night rate.  
     
   How many messages did Hannah send at night? During the day?
3. A carton contains 2 liters of tropical juice. The juice consists of   
   25% mango juice, 30% pineapple juice, and the rest is guava   
   juice. Find how many milliliters of each juice went into the   
   2-liter carton of tropical juice.

**PRACTICE SET**

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| 1. In a department store, a $40 dress is marked, "Save 25%." What is the discount? What is the sale price of the dress? | 1. In a grocery store, a $12 case of soda is labeled, "Get a 20% discount." What is the discount? What is the sale price of the case of soda? |
| 1. In a candy store, a $5.00 jar of candy is labeled, "50% off." What is the discount? What is the sale price of the jar of candy? | 1. In a bicycle store, a $500 bicycle is marked, "Get a 30% discount." What is the sale price of the bicycle? |
| 1. If the sales tax rate is 5%, then how much would you pay for a pair of shoes that cost $38.00? | 1. The price of a new car is $30,000. If the sales tax rate is 6%, then how much sales tax is being charged? What is the total cost for the car including tax? |
| 1. If the sales tax rate is 7% in New York State, then how much sales tax would you pay in Albany for a $40 pair of pants? | 1. At Best Buy they have a 42” TV that sells for $1200 and is on sale for 15% and sales tax is 6%. What is the final cost? |
| 1. If your cell phone bill was $60 and there is a 3% late fee, how much will your bill be? | 1. If you go out to eat with 3 friends and your meal was $70.00, there is 6% sales tax and you should tip the waiter 15%. How much should each person pay? |