

Math 6/7 NOTES (8.1a)

Name _____

Calculating Percentages of Numbers

- Mental Computations:

To find **10%** of a number mentally, move the decimal one place to the left.

10% of 30

$$\underline{3}$$

$$30$$

10% of 270

$$\underline{27}$$

$$270$$

10% of \$53

$$\underline{5.3}$$

$$53$$

To find **20%** of a number, first find 10% of a number mentally. Then multiply by 2!

20% of 20

$$\underline{4}$$

$$20$$

$$2 \times 2$$

20% of 320

$$\underline{64}$$

$$320$$

$$32 \times 2$$

20% of \$96

$$\underline{19.2}$$

$$96$$

$$\times 2$$

$$19.2$$

You Try!

1. 20% of 50 = 10

$$5 \times 2$$

2. 10% of 70

7

3. 5% of 34

$$\begin{array}{r} 1.7 \\ 2 \overline{)3.4} \\ \underline{2} \\ 1.4 \end{array}$$

1.7

4. 10% of 210

21

5. 5% of 25

1.25

$$\begin{array}{r} 2.5 \\ \div 2 \end{array}$$

6. 20% of 40

8

$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

7. 20% of 33

6.6

$$\begin{array}{r} 3.3 \\ \times 2 \\ \hline \end{array}$$

8. 10% of 48

4.8

More Mental Math☺

To find...

50%	<i>Half; Divide by 2</i>
25%	<i>One-Quarter; Divide by 4</i>
1%	<i>Divide by 100 or move decimal point 2 spaces LEFT</i>
30%	<i>Find 10%, then multiply by 3</i>
40%	<i>Find 10%, then multiply by 4</i>
60%	<i>Find 10%, then multiply by 6</i>
70%	<i>Find 10%, then multiply by 7</i>
80%	<i>Find 10%, then multiply by 8</i>
90%	<i>Find 10%, then multiply by 9</i>
*11%	<i>10% + 1%</i>

You Try!

9. 50% of 40

 $\div 2$
20

10. 25% of 36

 $\div 4$
9

11. 60% of 60

36
 6×6

12. 1% of 100

①

13. 20% of 15

$$\begin{array}{r} 1.5 \\ \times 2 \\ \hline 3 \end{array}$$

14. 40% of 30

$$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$$

15. 30% of 21

$$\begin{array}{r} 2.1 \\ \times 3 \\ \hline 6.3 \end{array}$$

16. 11% of 22

$$\begin{array}{r} 2.2 \\ + .22 \\ \hline 2.42 \end{array}$$

- To **CALCULATE** percentages that are not easily computed mentally...
 1. Use the **percent proportion!** OR
 2. Turn the **percent into a decimal** and **multiply** your number by your new decimal.

Example: Find each percentage of a number

1. 42% of 9

$$\begin{array}{r} .42 \\ \times 9 \\ \hline 3.78 \end{array}$$

2. 64% of 16

$$\begin{array}{r} .64 \\ \times 16 \\ \hline 10.24 \end{array}$$

3. 96% of 65

$$\begin{array}{r} .96 \\ \times 65 \\ \hline 62.4 \end{array}$$

4. 73% of 33

$$\begin{array}{r} .73 \\ \times 33 \\ \hline 24.09 \end{array}$$

5. 23% of 5

$$\begin{array}{r} .23 \\ \times 5 \\ \hline 1.15 \end{array}$$

6. 44% of 62

$$\begin{array}{r} .44 \\ \times 62 \\ \hline 27.28 \end{array}$$

7. 61% of 52

$$\begin{array}{r} .61 \\ \times 52 \\ \hline 31.72 \end{array}$$

8. 13% of 29

$$\begin{array}{r} .13 \\ \times 29 \\ \hline 3.77 \end{array}$$

9. 45% of 6

$$\begin{array}{r} .45 \\ \times 6 \\ \hline 2.7 \end{array}$$

10. 92% of 15

$$\begin{array}{r} .92 \\ \times 15 \\ \hline 13.8 \end{array}$$

11. 36% of 85

$$\begin{array}{r} .36 \\ \times 85 \\ \hline 30.6 \end{array}$$

12. 79% of 15

$$\begin{array}{r} .79 \\ \times 15 \\ \hline 11.85 \end{array}$$

Math 6/7 NOTES (8.1b)

Name _____

Consumer Math: Tax, Tips & Discounts

- A **TAX** is an additional amount of money charged on items that people buy.

The local, state, or federal government receives this money and uses it to build roads, schools and provide public services



- The **TOTAL COST** of an item is the original price PLUS the tax.

1) A graphing calculator costs \$90, and the sales tax is 5%. What is the **amount of tax** on the calculator?

$$90 \quad 9 \div 2 \quad \$4.50$$

Sales Tax: \$ 4.50

2) What is the **total cost** of a sweatshirt if the regular price is \$42 and the sales tax is 5%?

$$4.2 \div 2$$

Sales Tax: \$ ⁴²2.10

Total Cost: \$ 44.10

Use % proportion or equations, if the given numbers are not simple...

3) A graphing calculator costs \$90, and the sales tax is 4.25%. What is the **amount of tax** on the calculator?

$$\begin{array}{r} .0425 \\ \times 90 \\ \hline 3.825 \end{array}$$

Sales Tax: \$ 3.83

4) What is the **total cost** of a sweatshirt if the regular price is \$42 and the sales tax is 5.6%?

$$\begin{array}{r} .056 \\ \times 42 \\ \hline 2.352 \end{array}$$

$$\begin{array}{r} d2p \\ \swarrow \searrow \\ 5.6 \\ + .056 \\ \hline \end{array}$$

42
Sales Tax: \$ 2.35

Total Cost: \$ 44.35

- **DISCOUNT** is the amount by which the regular price of an item is reduced.
 - The **SALE PRICE** is the original price minus the discount.

5) Alan wants to buy a snowboard that has a regular price of \$169. This week, the snowboard is on sale at a 35% discount. How much can he save this week?

$$\begin{array}{r} 169 \\ \times .35 \\ \hline 59.15 \end{array}$$

Discount Amount: \$ 59.15

6) Mr. Harrison is going skiing for the weekend. A lift ticket is \$58. This weekend, lift tickets are on sale at a 20% discount. What is the sale price of the lift ticket?

$$\begin{array}{r} 58 \\ \times 2 \\ \hline 116 \end{array}$$

$$\begin{array}{r} 58.00 \\ \text{Discount Amount: } \$ 11.60 \\ \hline \text{Sale Price: } \$ 46.40 \end{array}$$

- A **TIP** (or gratuity) is given in return for a service. We add a percentage of the bill's subtotal to the total amount due. It is customary to "leave" a tip of 15% for a waiter in exchange for bringing us our food and drink at a restaurant.

○ The **TIP** amount is a percent of the bill's subtotal Added to the amount due.

5) Mr. Wurst took his class to Applebee's for lunch. The bill came to \$152 for food and drinks. If Mr. Wurst wants to leave the waitress a 15% tip, how much is the tip?

$$\begin{array}{r} 152 \\ \times .15 \\ \hline 22.80 \end{array}$$

Tip Amount: \$ 22.80

6) You and your friends go to Red Robin for dinner. Your bill comes to \$12. How much will you pay if you want to include an 18% tip?

$$\begin{array}{r} .18 \\ \times 12 \\ \hline 2.16 \end{array}$$

Tip Amount: \$ 2.16
Total Amount due: \$ 14.16

You Try!

Word problem	Proportion or Equation	Second step?	Final Answer
Cost of a sled: \$99.50 Tax: 5% Find the amount of tax	$\begin{array}{r} 99.50 \\ \times .05 \\ \hline 4.975 \\ \underline{\quad} \end{array}$	Round	\$4.98

Cost of a comic book: \$3.95 Discount: 20% Find the sale price	$\begin{array}{r} 3.95 \\ \times .2 \\ \hline .79 \end{array}$	Subtract $\begin{array}{r} 3.95 \\ - .79 \\ \hline \end{array}$	\$3.16
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$$100\% - 20\% = 80\%$$

$$3.95 \times .80 = 3.16$$

Original price of lunch: \$22.45 Tip: 18% Find the amount of tip	$22.45 \times .18 =$	4.041 Rounded	\$4.04
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Cost of a CD: \$14.50 Discount: 30% Find the sale price	$100\% - 30\% = 70\%$	$14.50 \times .7 =$	\$10.15
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Cost of an MP3 player: \$129.50 Tax: 6% Find the total price	$129.5 \times .06 =$ $100\% + 6\%$ 106%	129.50 $+ 7.77$ <hr/> $129.5 \times 1.06 =$	$\$137.27$
Cost of an oil change: \$21.95 Discount: 15% Find the amount of discount	21.95 $\times .15$ <hr/>	3.2925 Round	$\$3.29$