

### Finding the Percent of a Number

What does the term "of" mean in math?

"of" tells you to multiply. % to decimal,  $\div 100$

To find the percent of a number, you change the percent to a decimal, then multiply.

Examples:

22% of 98

$\downarrow \div 100$

$$0.22 \times 98$$

$$\boxed{21.56}$$

78% of 346

$$0.78 \times 346$$

$$269.88$$

12.5% of 84

$$0.125 \times 84$$

$$10.5$$

6% of 820

$$0.06 \times 820$$

$$= 49.2$$

146% of 90

$$1.46 \times 90$$

$$131.4$$

### Mentally Calculating Percents

There are percents that you can find without the use of a calculator.

You can always find **100%** of number, because your answer will be the number itself.

$$100\% \text{ of } 342 = 342$$

You can find **10%** of a number, by dividing the number by 10.

$$10\% \text{ of } 140 = 14$$

$$\text{(like } 140 \div 10 = 14 \text{)}$$



You can find **1%** of a number, by dividing the number by 100.

$$1\% \text{ of } 850 = 8.5$$



You can find **50%** of a number by dividing the number by 2.

$$50\% \text{ of } 64 = 32$$

$$\text{(like } 64 \div 2 = 32 \text{)}$$

You can find **25%** of a number by dividing the number by 4.

$$25\% \text{ of } 44 = 11$$

Have students put  
examples on back of  
sheet

**How can you mentally calculate 20% of a number?**

**Find 10% of the number, then multiply your answer by 2.**

$$\begin{array}{l} 20\% \text{ of } 65 \\ \times 2 \left( \begin{array}{l} 10\% \text{ of } 65 = 6.5, \\ \text{so } 20\% \text{ of } 65 = 13 \end{array} \right) \times 2 \end{array}$$

**You can mentally calculate any multiple of 10% using the same method**

**Find 10% of the number, then multiply your answer by #**

$$\begin{array}{l} 70\% \text{ of } 90 = \\ \times 7 \left( \begin{array}{l} 10\% \text{ of } 90 = 9, \\ \text{so } 70\% \text{ of } 90 = 63 \end{array} \right) \times 7 \end{array}$$

**You can mentally calculate 2% of a number by finding 1% of the number, then multiply it by 2.**

$$\begin{array}{l} 2\% \text{ of } 25 \\ \times 2 \left( \begin{array}{l} 1\% \text{ of } 25 = 0.25, \\ \text{so } 2\% \text{ of } 25 = 0.5 \end{array} \right) \times 2 \end{array}$$

**You can mentally calculate 75% of a number by finding 25% of the number, then multiply your answer by 3.**

$$\begin{array}{l} 75\% \text{ of } 240 = \\ \times 3 \left( \begin{array}{l} 25\% \text{ of } 240 = 60, \\ \text{so } 75\% \text{ of } 240 = 180 \end{array} \right) \times 3 \end{array}$$

**You can find 5% of a number by finding 10% of the number, then divide your answer by 2.**

$$\begin{array}{l} 5\% \text{ of } 250 = \\ \div 2 \left( \begin{array}{l} 10\% \text{ of } 250 = 25, \\ \text{so } 5\% \text{ of } 250 = 12.5 \end{array} \right) \div 2 \end{array}$$

**You can find 15% of a number by finding 10% of the number, then find 5% of the number and add your 2 answers.**

$$\begin{array}{l} 15\% \text{ of } 80 = \\ 10\% \text{ of } 80 = 8 \\ \text{so } 5\% \text{ of } 80 = 4 \end{array} \quad \text{so } 15\% \text{ of } 80 = 8+4 = 12$$

75% of 88

25% of 88 = 22  
 (like ÷ 4)

83

75% of 88 = 66

5% of 120

10% of 120 = 12  
 (like ÷ by 10) ↓ ÷ 2

5% of 120 = 6

60% of 75

10% of 75 = 7.5  
 × 6

60% of 75 = 45.0

15% of 220

10% of 220 = 22  
 5% of 220 = 11

15% of 220 = 33

q

Mentally calculate the following:

(a) 10 % of 90

$$= 9$$

(b) 50 % of 42

$$21$$

(c) 25% of 60

$$15$$

(d) 20% of 66

$$\begin{array}{l} \times 2 \downarrow \\ 10\% \text{ of } 66 = 6.6 \\ 20\% \text{ of } 66 = 13.2 \end{array} \quad \begin{array}{l} \times 2 \\ \times 2 \end{array}$$

(e) 75 % of 24

$$\begin{array}{l} \times 3 \downarrow \\ 25\% \text{ of } 24 = 6 \\ 75\% \text{ of } 24 = 18 \end{array} \quad \begin{array}{l} \times 3 \\ \times 3 \end{array}$$

(f) 15% of 80

$$\begin{array}{r} 10\% \text{ of } 80 = 8 \\ 5\% \text{ of } 80 = 4 \\ \hline 15\% \text{ of } 80 = 12 \end{array}$$

(g) 10 % of 38

$$= 3.8$$

(h) 10% of 75

$$7.5$$

(i) 15% of 120

$$\begin{array}{r} 10\% \text{ of } 120 = 12 \\ 5\% \text{ of } 120 = 6 \\ \hline 15\% \text{ of } 120 = 18 \end{array}$$

(j) 30% of 15


$$\begin{array}{l} 10\% \text{ of } 15 = 1.5 \\ \times 3 \downarrow \\ 30\% \text{ of } 15 = 4.5 \end{array} \quad \begin{array}{l} \times 3 \\ \times 3 \end{array}$$

(k) 20% of 400

$$\begin{array}{l} 10\% \text{ of } 400 = 40 \\ \times 2 \quad \times 2 \\ 20\% \text{ of } 400 = 80 \end{array}$$

(l) 5% of 150

$$\begin{array}{l} 10\% \text{ of } 150 = 15 \\ \downarrow \div 2 \\ 5\% \text{ of } 150 = 7.5 \end{array} \quad \begin{array}{l} \downarrow \div 2 \\ \downarrow \div 2 \end{array}$$



JIM'S BOOK STORE 1 THE STREET THE CITY	
BINDER X 2	\$10.00
FOUNTAIN PEN X 1	\$21.00
BLANK PAPER X 1	\$5.00
RULER X 1	\$2.00
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SUB TOTAL	\$38.00
TAX @ 20%	\$7.60
TOTAL	\$45.60

## Sales Tax and Total Cost



Sales tax is money that you pay to the government on almost everything that you buy. **In NB, we pay harmonized sales tax(HST) which is 15 %.**

### How to calculate Sales Tax

We pay sales tax on the price of the item, so to calculate the amount of sales tax, we take 15% of the price.

$$0.15 \times \$$$

*Step 1) To find the amount of sales tax calculate 15% of the Price (using our previous knowledge)*

*Step 2) To find the total cost including tax.  
Total cost = Price of item + Tax*

**Example 1)** A sweater sells for \$45.

(a) find the amount of tax you have to pay.

$$\begin{aligned} &= 15\% \text{ of Cost} \\ &= 0.15 \times \$45 \\ &= 6.75 \end{aligned}$$

$$\begin{aligned} 10\% \text{ of } 45 &= 4.50 \\ 5\% \text{ of } 45 &= 2.25 \\ \hline 15\% \text{ of } 45 &= 6.75 \end{aligned}$$

(b) find the total cost of the sweater.

$$\begin{aligned} \text{Total with Tax} &= \text{Cost} + \text{Tax} \$ \\ &= \$45 + 6.75 \\ &= \$51.75 \end{aligned}$$