Date: KEY

8.3 Percent of a Number

What are some places where finding the percent of a number may be useful?

- TEST SCORES
- POPULATION NUMBERS
- RESTAURANT TIPS

In math, the word "of" means to:

MULTIPLY.

Use mental math to determine each of the following:

50% of 190

$(50 \div 100) \times 190$

$= 0.5 \times 190$

$= 95$

10% of 220

$(10 \div 100) \times 220$

$= 0.1 \times 220$

$= 22$

75% of 150

$(75 \div 100) \times 150$

$= 0.75 \times 150$

$= 112.5$

WITHOUT CALCULATOR

50% of 190

$= \frac{50}{100} \times 190$

$= \frac{1}{2} \times 190$

$= \frac{190}{2}$

$= \frac{190}{2}$

$= 95$

Steps to finding the percent of a number:

1. CONVERT THE PERCENT TO A DECIMAL (OR FRACTION)
2. MULTIPLY.

Find the following percentages:

63% of 112

$= 0.63 \times 112$

$= \boxed{70.56}$

150% of 6

$= 1.50 \times 6$

$= \boxed{9}$

0.23% of 45

0.0023×45

$= \boxed{0.1035}$

2¼% of 9

$2.25\% \times 9$

$= 0.0225 \times 9$

$= \boxed{0.2025}$

Example:

1) Now that they are 25, Latrell and Svetlana are allowed to date. Latrell took Svetlana out for a very nice dinner at the very expensive "Let's Hold Hands" restaurant. After some nice conversation and dinner, the bill came to $93.22. Latrell was scared to look as he was unsure of how much to tip the server. It is customary to tip a server 15%, but he forgot his calculator in the car. Help Latrell use mental math to determine how much of a tip to leave.

(1) LATRELL NEEDS TO FIND 15% OF $93.22.

(2) HE CAN DO THIS IN PARTS: FIRST FIND 10% OF $93.22, THEN FIND 5% OF $93.22.

(3) TO FIND 10%, JUST MOVE THE DECIMAL TO THE LEFT ONE PLACE → $9.32

(4) LOGICALLY (PROPORTIONALLY), 5% IS JUST HALF OF 10%, SO FIND HALF OF $9.32, WHICH IS $4.66.

(5) ADD $9.32 + $4.66 = **$13.98**

(*) LATRELL COULD HAVE ESTIMATED BY ROUNDING $93.22 TO $95.

THEN: 10% + 5%
= $9.50 + $4.75
= **$14.25**

2) The annual Tsawwassen lottery usually sells 575 tickets.

What is your chance of winning if you purchase 1 ticket?

1 out of 575

$= \frac{1}{575}$

$= 0.001739...$

$= 0.17\%$

How many tickets would you need to buy for a 8.72% chance of winning?

↳ x

NOTE: 575 TICKETS ARE SOLD

THINK!

$\frac{x}{575} = 8.72\%$

$\frac{x}{575} = \frac{8.72}{100}$ (×5.75 on both sides)

$x = 8.72 \times 5.75$

$= 50.14$

(*) YOU CAN'T BUY 0.14 TICKETS, AND 50 TICKETS IS NOT ENOUGH, SO THE ANSWER IS **51.**

(I WOULD ACCEPT AN ANSWER OF 50, BUT IT IS ACTUALLY WRONG)