Math 155 - Day #5: Percents

We often hear the word percent: what does it mean?

Percent means "per 100" (Think of 100 cents in a dollar)

Example 1: In a group of 300 people, 20% drank coffee this morning

How many people from the group drank coffee?

We know that 20% - 20 per 100 - drink coffee

So, we need to know how many hundreds there are!

Just the way we say the word 200, it's clear that we have 3

But computationally, we see how many 100's by dividing by 100

In this case: $\frac{300}{100} = 3$

Finally, for each 100, 20 per 100 drank coffee

So, $3 \times 20 = 60$ people drank coffee this morning.

Notice that our computation was to multiply by 20 and divide by 100

Equivalently, we multiplied by $20/100$ - 20 per cent

$300 \times \frac{20}{100} = 60$

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Example: Find 15% of 200

15% of 200 can be computed as: $200 \times \frac{15}{100}$

$200 \times \frac{15}{100} = 200 \times .15 = 30$

Example: Find 15% of 60

15% of 60 can be computed as: $60 \times \frac{15}{100}$

$60 \times \frac{15}{100} = 60 \times .15 = 9$

Observation: We write 15% as $\frac{15}{100}$

Doing that computation alone, we find that $15\% = \frac{15}{100} = .15$

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Example: Suppose that at a college of 5000 students, 75% are registered to vote. How many students at the college are registered to vote?

Since 75% of the 5000 are registered to vote, we need to compute:

$5000 \times \frac{75}{100} = 5000 \times .75 = 3750$

Example: Suppose that you borrow \$500 from a friend as a loan. You agree to pay back the \$500 plus an additional 10%. How much did you agree to pay them back in total?

Setting aside the \$500 that you need to repay, we can find the additional 10% of \$500 by computing: $500 \times .10 = 50$

The total amount to be repaid is: $500 + 500 \times .1 = 500 + 50 = 550$

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Try these examples on your own:

What is 5% of 600?

$600 \times .05 = 30$

What is 6.5% of 600?

$600 \times .065 = 39$

Suppose that you invest \$200 into a CD at a local Credit Union and earn 3% interest in a year. How much interest do you earn in a year?

We need to compute what 3% of 200 is:

$200 \times .03 = 6$

Suppose that you invest \$20000 into a CD at a local Credit Union and earn 3% interest in a year. How much interest do you earn in a year?

We need to compute what 3% of 20000 is:

$20000 \times .03 = 600$

Suppose that you invest \$2000000 and earn 3% interest in a year. How much interest do you earn in a year?

We need to compute what 3% of 2000000 is:

$2000000 \times .03 = 60000$