Basics of Percent Problems

Practice

Percents ("Percent-Box Method")

Percent Applications

Percents ("is/of" Method)

Percent to Decimal / Decimal to Percent

Decimals to Fractions

Fractions to Decimals

Fractions to Percents

Percents to Fractions

Percents, Fractions, and Decimals

Comparing Percents, Fractions, and Decimals

Percents ("Percent-Box Method")

Part	Percent
=	
Whole	100

Finding Percent

Problem #1: Seven is what percent of 35?

Hint for Problem #1:
7 is the Part
Percent *(n)* is the unknown
35 is the Whole

	n
=	
	100

Finding Part

Problem #2: What number is 80% of 15?

Hint for Problem #2:
Part *(n)* is the unknown
80% is the Percent
15 is the Whole

n	
=	
	100

Finding Whole

Problem #3: 36 is 40% of what number?

Hint for Problem #3:
36 is the Part
40% is the Percent
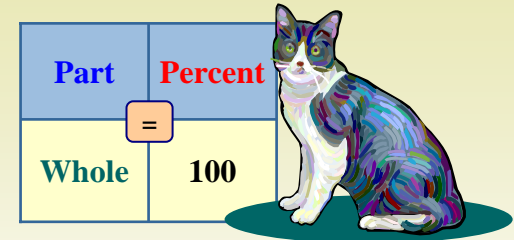Whole *(n)* is the unknown

=	
n	100

Hint for All Three Problems:
Percent goes above **100** in the percent box. **Part** is written above the **Whole**.
Write a proportion from the percent box and cross multiply.

Percent Applications
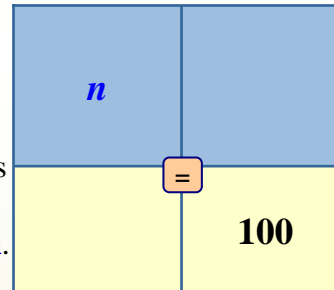
Part	Percent
Whole	100

Problem #4: A newspaper poll stated that 40% of the people in Jeremyville liked cats. If there were 2.5 million residents in Jeremyville, how many liked cats?

Hint:

a.) 1,000

b.) 10,000

c.) 100,000

d.) 1,000,000

"How many residents in Jeremyville liked cats?" This is the **part (n)** and is **unknown**.

n	
	100

Forty percent of the people in Jeremyville liked cats. The **percent** goes above the 100 .

"There are **2,500,000** residents in Jeremyville." This is the "**whole**" and is written below the **Part** .

Write a proportion from the percent box and cross multiply.

Percents ("is/of" Method)

$$\frac{\%}{100} = \frac{is}{of}$$

Finding Part

Problem #5: 85% of 40 is what number?

Hint for Problem #5:

85% is given --- 40 follows "of" --- "what number" follows "is"?

The number to be determined (part) follows the word "is".

Finding Percent

Problem #6: What percent of 75 is 12?

Hint for Problem #6:

% is not known --- 75 follows "of" --- 12 follows "is"

The % is missing.

Finding Base

Problem #7: 22% of what number is 11?

Hint for Problem #7:

22% is given --- "what number" follows "of" ? --- 11 follows "is"

The number to be determined (base) follows the word "of".

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Hint for All Three Problems:

Write a proportion following the "is/of" proportion and cross multiply.

Percent to Decimal / Decimal to Percent

Express Percents as Decimals Using a Shortcut

Problem #8: Write 2.3% as a decimal.

$$\frac{2.3}{100}$$

Hint for Problem #8: To express a percent as a decimal, divide the percent by 100.

Problem #9: Write 120% as a decimal.

120

Hint for Problem #9: To express a percent as a decimal, move the decimal point **two places** to the **left** and drop the percent sign.

Express Decimals as Percents Using a Shortcut

Problem #10: Select the correct percent for 0.06.

a.) 0.06%   b.) 0.6%   c.) 6%   d.) 60%

0.06×100

Hint for Problem #10: To express a decimal as a percent, multiply the percent by 100.

Problem #11: Write 0.059 as a percent.

0.059

Hint for Problem #11: To express a decimal as a percent, move the decimal point **two places** to the **right** and add the percent sign.

Decimals to Fractions

Problem #12: Write 0.85 as a fraction.

Hint for Problem #12: **Two decimal places** give **two zeros** in the denominator of the fraction. *Reduce the fraction to simplest terms.*

Problem #13: Write 9.8 as a fraction.

Hint for Problem #13: **One decimal place** give**s** **one zero** in the denominator of the fraction. *Reduce the fraction to simplest terms.*

Fractions to Decimals

Problem #14: Write a decimal for $\frac{3}{5}$.

$5\overline{)3.00}$

Hint for Problem #14: Divide the denominator into the numerator, and then add a decimal point and zeros until it comes out even.

Problem #15: Write a decimal for $\frac{8}{9}$ and round to the nearest hundredth.

$9\overline{)8.000}$

Hint for Problem #15: Divide to get one extra decimal place for rounding (in this case, divide through thousandths), stop, and then round.

Fractions to Percents

Problem #16: What is the correct percent for $\frac{5}{2}$?

a.) 2.5%   b.) 40%   c.) 400%   d.) 250%

Hint 1 for Problem #16: Express the fraction as a decimal by dividing the numerator by the denominator.

Hint 2 for Problem #16: Multiply the decimal by 100 (Shortcut: Move the decimal point two places to the right.)

Problem #17: What is the correct percent for $3\frac{5}{6}$?

Round the answer to the nearest hundredth of a percent.

a.) 3.83%   b.) 383.33%   c.) 383%   d.) 38.33%

Hint 1 for Problem #17: Express the fraction as a decimal by dividing the numerator by the denominator.

Hint 2 for Problem #17: Include the whole number with the decimal.

Hint 3 for Problem #17: Multiply the number by 100 using the shortcut. Round the repeating decimal to the nearest hundredth of a percent.

Percents to Fractions

Problem #18: Write 8% as a fraction.

$$\frac{8}{100}$$

Hint for Problem #18: Put 8 over 100 since percent means per hundred, and then simplify the fraction.

Problem #19: Write $33\frac{1}{3}\%$ as a fraction.

$$\frac{33\frac{1}{3}}{100}$$

Hint 1 for Problem #19: Put 33 1/3 over 100 since percent means per hundred.

$$33\frac{1}{3} \div 100$$

Hint 2 for Problem #19: Use division of fractions.

$$\frac{100}{3} \div 100$$

Hint 3 for Problem #19: Write the division problem in fraction form.

$$\frac{100}{3} \times \frac{1}{100}$$

Hint 4 for Problem #19: Invert the second fraction, and then multiply. Simplify answer if necessary.

Percents, Fractions, and Decimals

Problem #20: Write 15% as a fraction.

Problem #21: Write $\frac{1}{5}$ as a decimal.

Hint for Problem #20:

Percent ⟶ Decimal ⟶ Fraction

15%	
Decimal	0.15
Fraction	$\frac{15}{100}$ simplifies to ?
15% = 0.15 = ?	

Hint for Problem #21:

Fraction ⟶ Percent ⟶ Decimal

$\frac{1}{5}$	
Percent	$\frac{1}{5} \times \frac{20}{20} = \frac{20}{100} = 20\%$
Decimal	$\frac{20}{100} = ?$
$\frac{1}{5} = 20\% = ?$	

Problem #22: Write 0.07 as a percent.

Hint for Problem #22:

Decimal ⟶ Fraction ⟶ Percent

0.07	
Fraction	$\frac{7}{100}$
Percent	? %
$0.07 = \frac{7}{100} = ?\ \%$	

Comparing Percents, Fractions, and Decimals

Problem #23: What is the greatest number in the given set?

$$\{\frac{3}{5},\ 0.5,\ 6\%,\ \frac{1}{2}\}$$

$$\frac{3}{5} = 5\overline{)3.0} = ?\quad\quad 0.5 = 0.5\quad\quad 6\% = 0.\_\_\quad\quad \frac{1}{2} = 2\overline{)1.0} = ?$$

Problem #24: Order the list from least to greatest.

$$\frac{4}{5},\ 0.008,\ 8\%,\ 8\frac{1}{8}\%$$

$$\frac{4}{5} = 5\overline{)4.0} = ?\quad\quad 0.008 = 0.008\quad\quad 8\% = 0.\_\_$$

$$8\frac{1}{8}\%\quad\quad\quad \text{Find the decimal for } \frac{1}{8} = 8\overline{)1.000} = ?$$

Then, write 8._ _ _% as a decimal.

Answers

Problem #1: 20%

Problem #2: 12

Problem #3: 90

Problem #4: Choice "d".

Problem #5: 34

Problem #6: 16%

Problem #7: 50

Problem #8: 0.023

Problem #9: 1.2

Problem #10: Choice "c".

Problem #11: 5.9

Problem #12: 85/100 = 17/20

Problem #13: 9 8/10 = 9 4/5

Problem #14: 0.6

Problem #15: 0.89

Problem #16: Choice "d".

Problem #17: Choice "b".

Problem #18: 2/25

Problem #19: 1/3

Problem #20: 3/20

Problem #21: 0.2

Problem #22: 7%

Problem #23: 3/5

Problem #24: 0.008, 8%, 8 1/8%, 4/5