

Homework # 14 review

$$|-x + 100| = 21$$

$$-|1 + x| = -80$$

$$8 - \frac{1}{4\frac{1}{7}z} = 1$$

$$\frac{9}{7 + 2\frac{1}{7}}$$

A farmer has a cow, a goat and a goose. The cow and the goat will eat all the grass on his meadow in 45 days, the cow and the goose will eat all the grass on the same meadow in 60 days, and the goat and the goose will eat all the grass on the meadow in 90 days. How many days will it take them altogether to eat all the grass on the meadow? (we assume that the new grass is not growing.)

By adding these numbers we are counting the fraction of the grass eaten in one hour (but each animals contribution is counted twice)

$$\frac{1}{45} + \frac{1}{60} + \frac{1}{90} = \frac{4 + 3 + 2}{180} = \frac{9}{180} = \frac{1}{20} \quad \text{so we have to divide the result by 2}$$

$$\frac{1}{20} : 2 = \frac{1}{20} \times \frac{1}{2} = \frac{1}{40}$$

40 days

Compare:

$$|7 + 3| \quad |7| + |3|$$

$$|7 - 3| \quad |3 - 7|$$

$$|a - b| \quad |b - a|$$

$$|3a| \quad 3 * |a|$$

1. Solve equations: Remember: $|a| = a$ if $a \geq 0$; $|a| = -a$ if $a < 0$

$$2x + |3x| = x + 1$$

How we multiply decimals?

- Align the numbers normally (**Do not align decimal points**)
- Multiply, ignoring decimal points
- Add the products.
- Count how many numbers in total you have after decimal point
- Use that number for putting the decimal point on your product

$$3.77 \times 2.8 = ?$$

$$\begin{array}{r} 3.77 \text{ (2 decimal places)} \\ \times 2.8 \text{ (1 decimal place)} \\ \hline 3016 \\ +754 \\ \hline 10.556 \text{ (3 decimal places)} \end{array}$$

Ratio

A ratio describes a proportional relationship

For example: in a fourth grade, there are 80 boys and 100 girls. The number of boys is $\frac{4}{5}$ of the number of girls ($80 \div 100 = \frac{80}{100} = \frac{4}{5}$), number of boys (80) contains number of girls (100) $\frac{4}{5}$ times. When we compare things using the division we also use the word *ratio*.

The ratio of two numbers indicates how many times one number is larger than another or which part of one number the other number is.

We can write the ratio of two numbers in the several ways:

$$a \text{ to } b, \quad a:b, \quad \frac{a}{b}$$

Example: To make pancakes we use 3 cups of flour and 2 cups of milk.

So the ratio of flour to milk is **3 : 2**, which means that for each 2 cups of milk we need to have 3 cups of flour. To make pancakes for a LOT of people we might need 4 times the quantity, so we multiply the numbers by 4:

$$(3 \cdot 4) : (2 \cdot 4) = 12 : 8 \quad \left(\frac{3 \cdot 4}{2 \cdot 4} = \frac{12}{8} \right) \quad \text{12 cups of flour and 8 cups of milk}$$

Percent

1 percent of quantity is a $\frac{1}{100}$ th part of it.

1. One percent (**1%**) means 1 per 100.



2. How many squares we have to shade to shade 10% of the line, 15%, 20%, 25%?

How many percent is :

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

$$\frac{7}{10}$$

$$\frac{5}{25}$$

$$\frac{15}{60}$$

0.53

0.04

15 of 100

15 of 60

What is 100% of 80?

50% of 80?

10% of 80?

12% of 80?

Finding 10% of a number is dividing this number by 10.

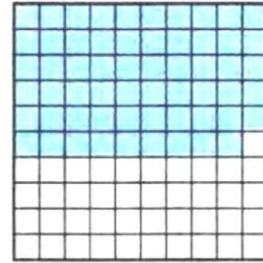
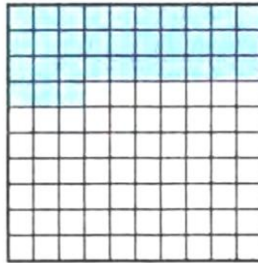
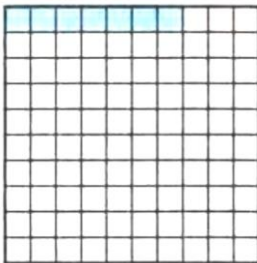
Different problem:

40% of what number is 12?

$$40\% \times X = 12$$

What percent of 48 is 12? $X\% \times 48 = 12$

1. What percent of each square is shaded on the picture below?



There was 25% of the cake left after a Birthday party. Ann ate 60% of the leftover cake. How much of the original cake did she eat?

Ann ate 25% of the cake the first day, on the second day she ate 85% of the leftover cake. How much of the whole cake did she eat altogether?