

Homework #10. Assigned on December 3rd. Due on December 10th.



1. Solve the following equations:

$2x - 4 = x + 8$	$\frac{1}{2} + y = 3$	$z - \frac{1}{3} = \frac{2}{3}$
$120 - 7x = 57$	$(y + 7) \cdot 9 = 117$	$\frac{3}{4} \div x = \frac{1}{2}$
$x \div \frac{1}{3} = \frac{3}{5}$	$18 \div x = 108$	$\frac{1}{5}x = \frac{2}{5}$

2. Compute:

$$\left(\frac{1}{3} + \frac{2}{9}\right) \div \left(\frac{9}{10} - \frac{2}{5}\right) =$$

$$\left(4 - \frac{2}{3}\right) \times \left(1\frac{1}{2} - \frac{3}{4}\right) =$$

$$\frac{7}{16} + \frac{9}{10} \times \frac{5}{14} \times \frac{7}{12} =$$

$$1 - \frac{9}{16} \div \frac{9}{4} - \frac{1}{12} =$$

3. Consider the number $W = 5 \cdot 5 \cdot 2 \cdot 2 \cdot 2 \cdot 7 \cdot 11$.
Without calculations find and explain whether W is a multiple of 10.
Is W a multiple of 100? Is it a multiple of 1000?
How many zeros does W have at the end?
4. *In a remote village many years ago villages successfully bred dragons. In a flock of 67 dragons one dragon breeder counted 48 Fire-Breathing Dragons, and another dragon breeder counted 47 Steam-Breathing dragons. Both swore there was no mistake. Explain their results using a Venn diagram.
5. Plot points $A(6,5)$ and $B(-3,-1)$ in Cartesian coordinates. Mark point $C(3, y) \in AB$ to find y .

Point $D(x, 7) \in AB$. Find x .
6. I got 34 binders and 40 loose leaf paper sets. What is the **greatest** number of students to whom I can distribute evenly the binders and paper sets?
7. An apple worm was eating an apple. On the first day, it ate a half of the apple, on the second day it ate a half of the rest, and on the third day it ate a half of the remaining apple again. On the fourth day, it ate whatever was left of the apple. What part of the apple did it eat on the fourth day?



8. Prove that among any 3 natural numbers there are always 2 numbers sum of which is even number.

9. Son is 5 years old and his father is 30 years older. How many years later will the father be four times older than his son?

10. Numbers 90 and 100 were divided by the same divisor. In the first case the remainder is 18 and in the second case the remainder is 4. Find the divisor.

11. Find the length of a segment AB if:

a. $\frac{2}{5}$ of its length is equal to 3 cm

b. $\frac{3}{4}$ of its length is equal to 13 m

c. 8 cm is $\frac{5}{7}$ of its length

d. 10 cm is $\frac{3}{10}$ of its length

12. Line a is parallel to line b . Find x

