

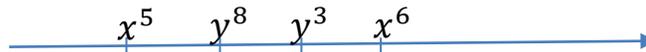
Algebra and Geometry 1. Homework 11.



1.

$$x^5 < y^8 < y^3 < x^6$$

Where 0 should be placed?



2. What is the greatest natural number n such that $n^{200} < 5^{300}$?
(Hint: $(a^x)^y = a^{xy}$)
3. Which of the following equalities are false statements, try to do it in your mind, without writing anything, don't use calculator. Solve correctly and write it in your homework notebook.

a. $4.5 - 2:5 = 4.1$

b. $4.9:7 \cdot 30 = 21$

c. $8 - 4 \cdot 1.4 = 2.4$

d. $0.54:0.9:0.1 = 0.6$

e. $7:2 + 5 = 1$

f. $28:(0.4 \cdot 0.7) = 10$

g. $5.6:0.7 + 1.2 = 9.2$

h. $(8 - 3.2):0.6 = 8$

i. $14 \cdot 0.01:0.2 = 0.7$

j. $0.81:(2.7:30) = 9$

k. $0.7 \cdot 0.06 \cdot 10 = 0.42$

l. $0.24:(0.5 + 0.3) = 0.3$

4. My homework assignment for today is to solve math problem and to solve physics problem. I can get “+” for positive (True) outcome of my homework or “-” otherwise as grades. What I will get if
- I will only do the math problem.
 - I will only do the physics problem.
 - I will do both.
 - I will not do anything?
5. My homework assignment for today is to solve math problem or to solve physics problem. I can get “+” for positive (True) outcome of my homework or “-” otherwise as grades. What I will get if
- I will only do the math problem.
 - I will only do the physics problem.
 - I will do both.
 - I will not do anything?
6. The following statements are proven. Can you tell which prove is right and which is wrong?
- All natural numbers are divisible by 7, for example: $14:7=2$.
 - Some proper fractions have denominator equals to 8, for example: denominator of the fraction $\frac{3}{8}$ is 8.
 - There are even numbers multiple of 3, for example 36 is multiple of 3, $36:3=12$
 - Some nouns in English language contain 5 letters, for example “table”.

- e. All verbs in English language start with letter “w”, for example “ (to) write”.
 - f. There are books written by Joanne Rowling, for example *Harry Potter and the Philosopher's Stone* .
7. Inhabitants of the city A always say the true, inhabitants of the city B always lie, and inhabitant of the city C say true or lie every other time. Fire department got a call from somebody: “We got a fire here, come over as soon as you can”. “Where is the fire?”, - the fireman asked. “In the city B”, - was the answer. Where should they go, if the fire in one of the cities is real?
 8. On the lawn grew 35 yellow and white dandelions. After eight whites flew away, and two yellows turned white, there were twice as many yellow dandelions as white ones. How many whites and how many yellow dandelions grew on the lawn at the beginning?
 9. What is greater
 - a. 30% out of 40 or 40% out of 30?
 - b. 80% out of 60 or 60% out of 70?
 10. There are two cups, one with coffee and another one with milk (the amounts of coffee and milk are the same). One teaspoon of coffee is poured into milk and mixed. Then one teaspoon of mixture is poured into coffee. Is there now more coffee in the milk, or milk in the coffee?