Algebra and Geometry 1. Homework 5.

1. Evaluate:

$a.\ (-3)^4$

$b.\ -3^4$

$c.\ 3^4;$

$d.\ (-5)^3;$

$e.\ -5^3;$

$f.\ 5^3;$

$g.\ (3\cdot 5)^2;$

$h.\ 3\cdot 5^2;$

$i.\ \frac{1}{4^2};$

$j.\ \left(\frac{1}{4}\right)^2;$

$k.\ 3^{-3};$

$l.\ (-3)^{-3};$

$m.\ (-5\cdot 2)^3$

Remember, that $a^n : a^m = a^{n-m} = a^{n+(-m)} = a^n \cdot \frac{1}{a^m} = a^n \cdot a^{-m}$

2. Evaluate:

$a.\ 8+7^2;\quad (8+7)^2;\quad 8^2+7^2;$

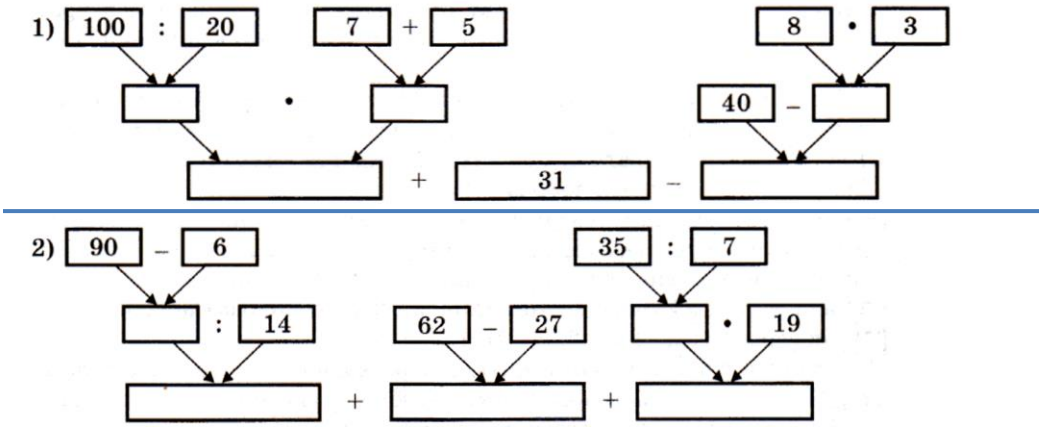
$b.\ (11-6)^3;\quad 11-6^3;\quad 11^3-6^3;$

$c.\ 5\cdot 2^4;\quad (5\cdot 2)^4;\quad 5^4\cdot 2^4;$

$d.\ (12:2)^3;\quad 12:2^3;\quad 12^3:2^3$

3. Using the diagram below write the numerical expression and after that evaluate it.
Solution for #1 (you need to do #2):

$$100:20\cdot(7+5)+31-(40-8\cdot 3)=5\cdot 12+31-16=75$$



4. It is known that $a + 1$ is divisible by 3. Prove that $4 + 7a$ is divisible by 3 as well.

5. Sum of two natural numberы is 45. First number will give the remainder 4 upon division by 12, second number will give the remainder 5 upon division by 12. What are these numbers?

6. Which of the following expression is divisible by 9 (check the divisibility by 9 rule)?

    1) $151 \cdot 45 + 151 \cdot 36$
    2) $154 \cdot 121 + 815 \cdot 121$
    3) $872 \cdot 45 - 872 \cdot 25$
    4) $574 \cdot 85 - 574 \cdot 65$

7. 4 angles are formed at the intersection of 2 lines. One of them is 35°. What is the measure of 3 others?

8. 3 lines intersect at 1 point and form 6 angles. One is 44°, another is 56°. Can you find all other angles?