

Algebra and Geometry 1. Homework 13.



1. Find the product of two monomials:

a) $1\frac{1}{5}a^2b^3 \cdot 1\frac{1}{9}ab^2$;

b) $\frac{1}{2}ck^2 \cdot \frac{2}{3}ck$;

c) $\left(-2\frac{1}{4}\right)p^2x^2 \cdot 1\frac{1}{3}px^3$;

d) $\left(-1\frac{2}{3}\right)a^2x^3 \cdot \left(-\frac{3}{5}\right)a^2x^4$;

Example: $1\frac{1}{5}a^2b^3 \cdot 1\frac{1}{9}ab^2 = \frac{6}{5}a^2b^3 \cdot \frac{10}{9}ab^2 = \frac{6 \cdot 10}{5 \cdot 9}a^3b^5 = \frac{4}{3}a^3b^5$

2. Rewrite without parenthesis:

a) $\left(-1\frac{1}{2}c^2\right)^2$; b) $\left(-1\frac{1}{3}e^3\right)^3$; c) $\left(1\frac{1}{7}ab\right)^2$; d) $\left(-\frac{1}{6}px^3\right)^3$

Example: $\left(\frac{2}{3}a^3x^2\right)^3 = \left(\frac{2}{3}\right)^3 (a^3)^3 (x^2)^3 = \frac{8}{27}a^9x^6$

3. Write the monomial B by which the given monomial A should be multiply in order to get the monomial C. $A \cdot B = C$

Example:

$A = 2a^2b^3$; $C = 6a^5b^4$;

$A \cdot B = C$; $C : A = B = (6a^5b^4) : (2a^2b^3) = 3a^3b$; Check: $(2a^2b^3) \cdot (3a^3b) = 6a^5b^4$

a. $A = 3k^2x$; $C = k^3x^2$

b. $A = 4c^3d^2$; $C = c^3d^4$

c. $A = 5x^5y^7$; $C = 10x^7y^8$

4. Which monomials M and N will make the true equality?

Example:

$(a + b + c) + (M - N + c) = 4a - 2b + 2c$

$a + b + c + M - N + c = 4a - 2b + 2c$

$a + b + 2c + M - N = 4a - 2b + 2c$

$a + b + M - N = 4a - 2b$, $M = 3a$, $N = 3b$

check: $a + b + 3a - 3b = 4a - 2b$

a. $(a + b + c) + (M - N + c) = 4a - 2b + 2c$

b. $(7x - N) - (M + 2y) = 3x - 2y$

c. $(M + N) - (2a - b) + (a - 4b) = 5a + 7$

d. $(a - M) - (N + 7b) - (3a + b) = -5a - 10b$

5. Salary of an employee first was increased by 20%, then decreased by by 20%. Is the final salary greater, smaller or equal to the initial one?
6. Peter and John left the city A at the same time heading to the city B. Peter rode a bicycle and John drove a car at the speed 5 times the speed of the bicycle. Halfway the car stopped broken and John walked the rest of the way at the speed half of the cyclist. Who first came to the city B?
7. "Give me \$100 and I will be twice as rich as you are" said Mr. X to Mr. Y. Mr Y answered to Mr. X: "Give me only \$10 and I will become 6 time as rich as you are." How many dollars did each of them have?