MATH 6 HOMEWORK 13

January 18, 2026

Algebraic expression and exponents:

$$a^0 = 1$$

$$a^m \cdot a^n = a^{m+n}$$

$$a^m \div a^n = \frac{a^m}{a^n} = a^{m-n}$$

$$(ab)^n = a^n \cdot b^n$$

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$a^n = \frac{1}{a^{-n}}$$

$$(a^m)^n = a^{m \cdot n}$$

$$\boldsymbol{(a \pm b)^2 = a^2 \pm 2ab + b^2}$$

$$\boldsymbol{(a + b)(a - b) = a^2 - b^2}$$

And ***factorizing***:

$$\boldsymbol{a(b + c) = ab + ac}$$

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1. Simplify:

(a) $\left(\frac{a^2b^5}{a^2b^3}\right)^3 + 3b^6 =$ (b) $\frac{(-ab)^7}{(ab)^6} - ab =$ (c) $\left(\frac{3a^2b^3}{21a^3b^2}\right)^2 \cdot \left(\frac{a}{b}\right)^2 =$

2. Simplify the following and show the answer in the exponent form.

a) $\frac{32^3}{64^2} = 2^?$ b) $\frac{5^5 \cdot 11^{11}}{11^5 \cdot 5^{11}} =$ c) $\frac{7^{-5} \cdot 3^6}{3^{-3} \cdot 3^4} =$

3. Add fractions, simplify:

(a) $\frac{2}{ab} + \frac{12}{ba} =$

(b) $\frac{1}{x-1} - \frac{2}{x-1} =$

(c) $1 - \frac{2ab}{a^2+b^2} =$

4. Open parenthesis, simplify, use your knowledge about algebraic identities:

(a) $(17x - 7y)^2 =$

(b) $(13x + 12)(13x - 12) =$