

MATH 6 HOMEWORK 19

March, 14 2021

Algebraic expression and expomnents:

$$a^0 = 1$$

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

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

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

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

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

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

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

$$(a + b)(a - b) = a^2 - b^2$$

And *factorizing*:

$$a(b + c) = ab + ac$$

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1. Simplify:

$$(a) \left(\frac{5a^2b^5}{4a^3b^3} \right)^3 =$$

$$(b) (2z^2 \cdot 3z^3 \cdot z)^2 =$$

$$(c) \frac{(-ab)^8}{(ab)^2} =$$

$$(d) \left(\frac{3ab^3}{15b} \right)^2 \cdot \frac{75c}{a^2b^6} =$$

$$(d) \left(\frac{3a^5b^2}{21ab} \right)^2 \cdot \frac{7^4}{a^{16}b^2} =$$

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

$$a) \frac{3^7 \cdot 2^7}{2^3 \cdot 2^4} =$$

$$b) \frac{6^5 \cdot 2^4}{3^5 \cdot 2^2} =$$

$$c) \frac{7^9 \cdot 2^5}{7^2 \cdot 2^4} =$$

$$d) \frac{11^4}{11^2 \cdot 5^2 \cdot 5^3} =$$

$$e) 7^4 \cdot 11^2 \cdot 11^{-5} \cdot 7^2 =$$

$$f) \frac{3^{-5} \cdot 2^7}{3^{-3} \cdot 2^4} =$$

$$g) \frac{42^2}{6^2} =$$

$$h) \frac{3^5 \cdot 3^{-5}}{3^9} =$$

$$i) \frac{x^2 \cdot y^2 \cdot x^{-3}}{x^2} =$$

3. Add fractions, simplify

$$(a) \frac{1}{a} + \frac{2}{b} =$$

$$(b) \frac{4}{x} + \frac{3}{xy} - \frac{8}{2x} =$$

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

$$(d) b - \frac{ab}{a-b} =$$

$$(e) \frac{b-a}{b+a} - \frac{b+a}{b-a} =$$