MATH 6 HOMEWORK 19

March, 13 2022

Algebraic expression and exponents:

$$a^0 = 1$$

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

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

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

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

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

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

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

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

And *factorizing*:

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

MATH 6 HOMEWORK 19

March 13, 2022

1. Simplify:

(a) $\left(\dfrac{5a^2b^5}{4a^3b^3}\right)^3 =$ 　　　　(b) $\left(2z^2 \cdot 3z^3 \cdot z\right)^2 =$ 　　　　(c) $\dfrac{(-ab)^8}{(ab)^2} =$

(d) $\left(\dfrac{3ab^3}{15b}\right)^2 \cdot \dfrac{75c}{a^2b^6} =$ 　　　　(d) $\left(\dfrac{3a^5b^2}{21ab}\right)^2 \cdot \dfrac{7^4}{a^{16}b^2} =$

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

a) $\dfrac{3^7 \cdot 2^7}{2^3 \cdot 2^4} =$ 　　　　b) $\dfrac{6^5 \cdot 2^4}{3^5 \cdot 2^2} =$ 　　　　c) $\dfrac{7^9 \cdot 2^5}{7^2 \cdot 2^4} =$

d) $\dfrac{11^4}{11^2 \cdot 5^2 \cdot 5^3} =$ 　　　　e) $7^4 \cdot 11^2 \cdot 11^{-5} \cdot 7^2 =$ 　　　　f) $\dfrac{3^{-5} \cdot 2^7}{3^{-3} \cdot 2^4} =$

g) $\dfrac{42^2}{6^2} =$ 　　　　h) $\dfrac{3^5 \cdot 3^{-5}}{3^9} =$ 　　　　i) $\dfrac{x^2 \cdot y^2 \cdot x^{-3}}{x^2} =$

3. Add fractions, simplify

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

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

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

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

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