

## Math 12 – Workshop #8

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1. Identify the base and the exponent of each expression

(a)  $2^4$

(d)  $(-2)^6$

(g)  $(b^2)^{12}$

(b)  $13^{-13}$

(e)  $(3ab)^2$

(c)  $-3^2$

(f)  $4x^2$

(h)  $\pi^\pi$

2. Simplify the expression. Assume no variables are zero.

(a)  $(a^2b^3)^4$

(b)  $a^2b^{-2}b^3$

(c)  $(a^3)^2a^{-6}$

(d)  $\frac{1}{16}x^2y(-4xy^3z^0)$

(e)  $\frac{3x^0 + 1}{4^3x^3x^{-4}}$

(f)  $b^xb^{-2x}\left(\frac{1}{b^2}\right)$

3. Write each expression in the base(s) given.

(a)  $2^6 \cdot 64$  base 2, base 4 and base 8.

(b)  $\frac{a^2}{a^3}$ , base  $a$ .

(c)  $\frac{5^4}{(5^3)^2}$ , base 5.

(d)  $\frac{7^{-2} \cdot 7^4}{7^{2x}}$  base 7 and base 49.

4. Perform the division, your answer should use only positive exponents and assume no division by zero.

(a)  $\frac{2y^{-3}}{4y^3}$

(b)  $\frac{21x^2y^{-1}z^0}{49x^3y^{-1}z^{-2}}$