

Name _____ Date _____

6. Evaluate each power. For each power:

a) $(-6)^5$

b) $\underline{-}(6)^5$

c) $-(-6)^5$

d) (-6^5)

7. Predict whether each answer is positive or negative, then evaluate.

a) $(-3)^2$

b) $(-3)^3$

c) -3^2

d) $\underline{-}(-3)^3$

8. Is the value of -2^4 different from the value of $(-2)^4$? Explain.

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Master 2.18

Extra Practice 2

Lesson 2.2: Powers of Ten and the Zero Exponent

1. Evaluate each power.

a) 4^0 b) 23^0 c) $(-6)^0$

d) 1^0 e) -1^0 f) $(-1)^0$

2. Write each number as a power of 10.

a) 10 000 b) 1 000 000 c) one billion d) ten e) 1

3. Use powers of 10 to write each number.

a) 700 000 000 000 b) 7000

c) 77 077

d) 7 000 007

4. Write each number in standard form.

a) (8×10^5)

b) $(9 \times 10^7) + (9 \times 10^6) + (5 \times 10^5)$

c) $(2 \times 10^3) + (2 \times 10^2) + (6 \times 10^0)$

d) $(5 \times 10^5) + (4 \times 10^8) + (8 \times 10^0) + (3 \times 10^4)$

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5. Write these numbers in standard form, then order them from least to greatest.

fifty-five hundred 50 500 $(5 \times 10^6) + (5 \times 10^0)$

five hundred thousand 5×10^4 500 500

6. a) Complete this table for a base of 10.

Exponent	Power	Standard Form
6	10^6	
5		
4		
3		
2		
1		
0		

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Master 2.19

Extra Practice 3

Lesson 2.3: Order of Operations with Powers

1. Evaluate.

a) $5^2 + 3$

b) $5^2 - 3$

c) $5 + 3^2$

d) $5 - 3^2$

e) $(5 + 3)^2$

f) $(5 - 3)^2$

g) $5^2 + 3^2$

h) $5^2 - 3^2$

2. Evaluate.

a) $4^3 \times 2$

b) $4^3 \div 2$

c) 4×2^3

d) $4 \div 2^3$

e) $(4 \times 2)^3$

f) $(4 \div 2)^3$

g) $4^3 \times 2^3$

h) $4^3 \div 2^3$

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3. Evaluate.

a) $(18 \div 3^2 + 1)^4 - 4^2$

b) $3^3 \div 9(3^0 - 2^2)$

c) $(12^2 + 5^3)^0 - 2[(-3)^3]$

d) $(7 - 5)^3 \times (8 + 2)^4$

e) $(4^2 \times 1^5)^2$

f) $[(-3)^4 - (-2)^3]^0 \div [(-4)^3 - (-3)^2]^0$

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Extra Practice 4

Lesson 2.4: Exponent Laws 1

1. Write each product as a single power.

a) $4^3 \times 4^2$

b) $5^0 \times 5^0$

c) $(-2)^2 \times (-2)^4$

d) $-6^3 \times 6^1$

e) $(-7)^0 \times (-7)^2$

f) $(-9)^6 \times (-9)^3$

2. Write each quotient as a single power.

a) $8^7 \div 8^5$

b) $10^4 \div 10^0$

c) $(-1)^6 \div (-1)^3$

d) $\frac{-3^4}{3^4}$

e) $\frac{(-9)^{10}}{(-9)^5}$

f) $\frac{11^9}{11^8}$

3. Express as a single power.

a) $2^3 \times 2^6 \div 2^9$

b) $(-5)^8 \div (-5)^4 \times (-5)^3$

c) $\frac{6^3 \times 6^5}{6^2 \times 6^4}$

4. Simplify, then evaluate.

a) $2^2 - 2^0 \times 2 + 2^3$

b) $(-2)^6 \div (-2)^5 - (-2)^5 \div (-2)^3$

c) $-2^2(2^3 \div 2^1) - 2^3$

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Extra Practice 5

Lesson 2.5: Exponent Laws II

1. Write each expression as a product of powers or a quotient of powers.

a) $(3 \times 2)^4$

b) $[(-4) \times 3]^2$

c) $[(-2) \times (-4)]^3$

d) $(7 \times 11)^0$

e) $(10 \div 5)^3$

f) $[(-12) \div (-6)]^2$

g) $\left(\frac{8}{4}\right)^4$

h) $\left(\frac{1}{10}\right)^6$

2. Write as a power.

a) $(3^4)^2$

b) $(5^0)^3$

c) $-(7^2)^2$

d) $[(-3)^3]^2$

3. Why is the value of $[(-3)^3]^2$ positive and the value of $[(-3)^3]^3$ negative?

4. Simplify, then evaluate.

a) $(2^3 \times 2^1)^2$

b) $(5^4 \div 5^2)^2$

c) $[(-3)^0 \times (-3)^3]^2$

d) $(10^2)^4 \div (10^3)^2$

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5. Simplify, then evaluate.

a) $4^3 \div 4^2 + 2^4 \times 3^2$

b) $3^2 + 4^2 \times 4^1 \div 2^3$

c) $\frac{3^4}{3^3} + \frac{4^2 \times 4^0}{2^4}$

Math 9

Name _____ ID: 1

Laws of Exponents (Review)

Date _____ Period _____

Simplify. Your answer should contain only one base.

1) $[5^2 \times (5^4)]^6$

2) $[6^3 \times 6^3 \times 6^2]^2$

3) $5^3 \times 5^2 \times (5^0)^3$

4) $6^4 (6^2)^3$

5) $(4^3)^2 \times 4^2$

6) $6 \times (6^3)^2$

7) $\frac{3^3 \times 3^3}{3^3}$

8) $\frac{2^0 \times 2^3}{2^2}$

9) $\frac{6^3 \times 6^9}{6^5}$

10) $\frac{4 \times 4^3}{4^2 \times 4^2}$

11) $\frac{6^2 \times 6^0}{6^2}$

12) $\frac{3^{12}}{3 \times 3^0}$

13) $\left(\frac{5^4}{5^3}\right)^3$

14) $\frac{6^{22}}{6^{15}}$

15) $\left(\frac{5^2}{5^3}\right)^0$

16) $\left(\frac{4^2}{(4^0)^2}\right)^3$

17) $\left(\frac{4^3}{4^2}\right)^3$

18) $\frac{(2^3)^2}{2^3}$

19) $\frac{(3^2)^8}{3^2 \times 3^5}$

20) $\frac{4^3 \times (4^2)^2}{4^2}$

21) $\frac{(2^2)^5}{2^4 \times 2^2}$

22) $\frac{[5^3 \times 5^2]^2}{5}$

23) $\frac{6^3 \times (6^3)^3}{6^0}$

24) $\frac{[2 \times (2^3)^0 \times (2^3)^2]^3}{2^6}$

Worksheet 2:

Math 9B (Sem 1)

Name _____

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Intro to Laws of Exponents

Date _____ Period _____

Simplify. Your answer should contain only positive exponents.

1) $x^2 \cdot 3x$

2) $v^4 \cdot 2v^2$

3) $3x^2 \cdot 2x$

4) $x^3 \cdot 3x^4$

5) $(2n^4)^0$

6) $(3a^2)^2$

7) $(p^2)^4$

8) $(4n^0)^0$

9) $\frac{4k^3}{k}$

10) $\frac{x^4}{2x^3}$

11) $\frac{3x^4}{2x^3}$

12) $\frac{3a^4}{a^4}$

13) $(n^2)^2 \cdot n^4$

14) $2n^3 \cdot n^3$

15) $(m^0 \cdot (2m)^4)^2$

16) $n^3 n^2 \cdot (2n^4)^3$

17) $(2x^3)^2 \cdot x^4 \cdot 2x^3$

18) $(2x^3)^2 \cdot x \cdot 2x$

19) $\frac{b}{2b^4 \cdot 2b^2}$

20) $\frac{3n}{4n^4 \cdot 4n^3}$

21) $\frac{4x^4 \cdot 3x^3}{4x^2 \cdot x}$

22) $\frac{x^2 x^3}{x^4}$

23) $\frac{3x^2}{2x^4 \cdot 4x^2}$

24) $\frac{mn^4}{3n^3}$

25) $\frac{2x^2}{(2x^4)^4}$

26) $\left(\frac{n^2}{n}\right)^3$

27) $\frac{(2m^2)^3}{m^4}$

28) $\frac{2m}{(m^3)^0}$

29) $\frac{2x^3}{x^0}$

30) $\frac{n^4}{n^3}$

31) $\left(\frac{2x^3 \cdot 2x^0}{2x^3}\right)^2$

32) $\frac{n^4 \cdot 2n^4}{(2n^0)^3}$

33) $\frac{(b^4)^2}{b^3 \cdot b}$

34) $\frac{x^4}{(2x^4 \cdot x)^4}$

35) $\left(\frac{(n^4)^3}{n^3 \cdot 2n^2}\right)^0$

36) $\frac{(2k^3)^3}{2k^2 \cdot 2k^2}$