

Name _____ Date _____ Pd _____

Chapter 9 Bringing It All Together (Powers & Exponents)

Write each expression using exponents.

1) $17 \cdot r \cdot r \cdot r \cdot r \cdot w \cdot w$ _____ 2) $(4)(4)(4)(4)(4)$ _____

3) $(p - 9)(p - 9)(p - 9)(p - 9)(p - 9)(p - 9)(p - 9)$ _____

Evaluate each expression if $y = 4$ and $z = 3.6$

4) $(-y)^5 + 41^0$ _____ 5) $-7(3z + 9)^2$ _____

Evaluate each expression if $e = 6$ and $f = -8$

6) $f^3 + 5$ _____ 7) $e - 5f^2$ _____

Determine whether each number is *prime* or *composite*.

8) 87 _____ 9) 3,146 _____ 10) 51 _____

11) 195 _____ 12) 201 _____

Write the prime factorization of each number. Use exponents for repeated factors.

13) 225 _____ 14) 846 _____ 15) 96 _____

Factor each monomial.

16) $-32h^4i^5j$ _____

17) $25rs$ _____

18) $56t^6s^2$ _____

OVER →

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Find each product. Express using exponents.

19) $(-17)^9(-17)^5$ _____ 20) $g^0 \cdot g^{49}$ _____

21) the product of three squared and three to the fourth power _____

22) $(22w^8x)(-8x)$ _____ 23) $(-21b^3c^2)(3b^2c^6)$ _____

Find each quotient for #24-28. Express using exponents.

24) $\frac{82^{13}}{82^{10}}$ _____

25) $y^{15} \div y$ _____

26) the quotient of C cubed and C cubed _____

27) $\frac{q^3q^{-4}}{q^7}$ _____

28) $\frac{a^{-5}a^{-2}}{a^{-9}}$ _____

Write each expression using a positive exponent.

29) 5^{-11} _____

30) $(-4)^{-3}$ _____

31) d^{-24} _____

32) $6h^{-7}$ _____

Write each fraction as an expression using a negative exponent other than -1 .

33) $\frac{1}{5^3}$ _____

34) $\frac{1}{81}$ _____

35) $\frac{1}{b^{19}}$ _____

36) $\frac{4}{z^8}$ _____

Evaluate each expression if $s = 2$, $r = -4$ and $s = 5$.

37) $(qr)^{-4}$ _____

38) 4^r _____

39) $-s^{-1}$ _____

40) $3^r q^2$ _____

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Express each number in standard form.

41) 6.92×10^5 _____

42) 7.38×10^{-8} _____

43) 6.39452×10^3 _____

Express each number in scientific notation.

44) 478,100,000 _____

45) 0.0000003 _____

46) 0.0047 _____

Order from least to greatest.

44) 8,451,210 ; 8.04×10^{-5} ; 8.4×10^5 ; 804,000

Simplify.

45) $(4^5)^7$ _____

46) $(g^9)^{-4}$ _____

47) $(20u^4v)^2$ _____

48) $(-3a^3b^{-7})^6$ _____

FINALLY DONE



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Chapter 9 BIT Answer Key

Write each expression using exponents.

1) $17 \cdot r \cdot r \cdot r \cdot r \cdot w \cdot w$ **$17r^4w^2$** 2) $(4)(4)(4)(4)(4)$ **4^5**

3) $(p - 9)(p - 9)(p - 9)(p - 9)(p - 9)(p - 9)(p - 9)$ **$(p - 9)^7$**

Evaluate each expression if $y = 4$ and $z = 3.5$

4) $(-y)^5 + 41^0$ **$-1,023$** 5) $-7(3z + 9)^2$ **$-2,744.28$**

Evaluate each expression if $e = 6$ and $f = -8$

6) $f^3 + 5$ **-507** 7) $e - 5f^2$ **-314**

Determine whether each number is *prime* or *composite*.

8) 87 **Composite** 9) 3,146 **Composite** 10) 51 **Composite**

11) 195 **Composite** 12) 201 **Composite**

Write the prime factorization of each number. Use exponents for repeated factors.

13) 225 **$3^2 \cdot 5^2$** 14) 846 **$2 \cdot 3^2 \cdot 47$** 15) 96 **$2^5 \cdot 3$**

Factor each monomial.

16) $-32h^4i^5j$ **$-1 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot h \cdot h \cdot h \cdot h \cdot i \cdot i \cdot i \cdot i \cdot i \cdot j$**

17) $25rs$ **$5 \cdot 5 \cdot r \cdot s$**

18) $56t^6s^2$ **$2 \cdot 2 \cdot 2 \cdot 7 \cdot s \cdot s \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t$**

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Find each product. Express using exponents.

19) $(-17)^9(-17)^5$ $(-17)^{14}$ 20) $g^0 \cdot g^{49}$ g^{49}

21) the product of three squared and three to the fourth power 3^6

22) $(22w^8x)(-8x)$ $-176w^8x^2$ 23) $(-21b^3c^2)(3b^2c^6)$ $-63b^5c^8$

Find each quotient for #24-28. Express using exponents.

24) $\frac{82^{13}}{82^{10}}$ 82^3

25) $y^{15} \div y$ y^{14}

26) the quotient of C cubed and C cubed c^0

27) $\frac{q^3q^{-4}}{q^7}$ $\frac{1}{q^8}$

28) $\frac{a^{-5}a^{-2}}{a^{-9}}$ a^2

Write each expression using a positive exponent.

29) 5^{-11} $\frac{1}{5^{11}}$

30) $(-4)^{-3}$ $\frac{1}{(-4)^3}$

31) d^{-24} $\frac{1}{d^{24}}$

32) $6h^{-7}$ $\frac{6}{h^7}$

Write each fraction as an expression using a negative exponent other than -1 .

33) $\frac{1}{5^3}$ 5^{-3}

34) $\frac{1}{81}$ 3^{-4} or 9^{-2}

35) $\frac{1}{b^{19}}$ b^{-19}

36) $\frac{4}{z^8}$ $4z^{-8}$

Evaluate each expression if $s = 2$, $r = -4$ and $s = 5$.

37) $(qr)^{-4}$ $\frac{1}{4,096}$

38) 4^r $\frac{1}{256}$

39) $-s^{-1}$ $-\frac{1}{5}$

40) $3^r q^2$ $\frac{4}{81}$

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Express each number in standard form.

41) 6.92×10^5 **692,000**

42) 7.38×10^{-8} **0.0000000738**

43) 6.39452×10^3 **6,394.52**

Express each number in scientific notation.

44) 478,100,000 **4.781×10^8**

45) 0.0000003 **3×10^{-7}**

46) 0.0047 **4.7×10^{-3}**

Order from least to greatest.

44) 8,451,210 ; 8.04×10^{-5} ; 8.4×10^5 ; 804,000

8.04×10^{-5} ; 804,000 ; 8.4×10^5 ; 8,451,210

Simplify.

45) $(4^5)^7$ **4^{35}**

46) $(g^9)^{-4}$ **$\frac{1}{g^{36}}$**

47) $(20u^4v)^2$ **$400u^8v^2$**

48) $(-3a^3b^{-7})^6$ **$\frac{729a^{18}}{b^{42}}$**

