

Powers and Exponents Final Exam Review #1 - Key

• Using Exponents to Describe Numbers.

a) 3^4 37^1
base base

b) 121 841 40 353 607 -81

c) No 46 656 \neq -46 656

d) $6^3 = 216$ $6 \times 6 \times 6 = 216$

e) 8^6 $(-8)^6$

• Exponent Laws

a) $6^{11} = 362\ 797\ 056$ $(-4)^{11} = -4\ 194\ 304$

b) $4^4 \times 4^5 = 4^9$ $(-9)^3 \times (-9)^4 = (-9)^7$

$-(2^3) \times 2^2 = -2^5$ $1^4 \times 3^2 = 3^2$ -or- no single power is possible.

c) $7^2 = 49$ $(-10)^3 = -1000$

d) $8^5 \div 8^4 = 8^1$ $\frac{5^8}{5^3} = 5^5$

e) $\frac{(-7) \times (-7) \times (-7) \times (-7) \times (-7) \times (-7) \times (-7) \times (-7) \times (-7)}{(-7) \times (-7)}$ $[(-3) \times (-3) \times (-3)] \times (-3)$

f) $8^4 = 4096$ $4^0 = 1$

g) $5^{12} = 244\ 140\ 625$ $(-9)^6 = 531\ 441$

$$h) (4^3)^4$$

$$(5^2)^3$$

$$i) \frac{5^3}{6^3} = \frac{125}{216}$$

$$\frac{(-3)^6}{4^6} = \frac{729}{4096}$$

$$j) 7^4 \times (-3)^4$$

$$= 194\ 481$$

$$(-6)^2 \times 5^2$$

$$= 900$$

$$k) 3^{11} = 177\ 147$$

$$(-4)^8 = 65\ 536$$

$$-4^9 = -262\ 144$$