T-COPY

MFM 2P NUMERACY REVIEW – DAY 3 - HMWK DATE:

EXPONENTS

Example 1

$2^4 = 2 \times 2 \times 2 \times 2$ (expanded form)
$= 16$ (This is a power of 2)

2^4 is called the power

2 is called the base
4 is called the exponent

Example 2

Calculate $2^2 \times 3^2$

Solution

$2^2 \times 3^2 = 2 \times 2 \times 3 \times 3$
$= 36$

unlike bases

1. Evaluate: write the value of each.

(a) $2^2 =$ 4 (b) $3^4 =$ 81 c) $4^3 =$ 64

2. Simplify.

(a) 3×2^3
$= 3 \times 8$
$= 24$

(b) 2×4^2
$= 2 \times 16$
$= 32$

(c) $2^2 \times 3^3$
$= 4 \times 27$
$= 108$

(d) $3^2 \times 2^3$
$= 9 \times 8$
$= 72$

(e) $2^3 \times 4^2$
$= 8 \times 16$
$= 128$

(f) $5^2 \times 2^2$
$= 25 \times 4$
$= 100$

3. For each power, what is the base? the exponent?

(a) 2^3 base: 2 exponent: 3 (c) 2^5 base: 2 exponent: 5

(b) 3^4 base: 3 exponent: 4 (d) 36^1 base: 36 Exponent 1

4. Write each expression as a power.

(a) $3 \times 3 \times 3 \times 3 \times 3$
$= 3^5$

(b) $(-5) \times (-5) \times (-5)$
$= (-5)^3$

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

(d) $-5 \times 5 \times 5$
$= -5^3$

(e) $5 \times 5 \times 5$
$= 5^3$

(f) 6×6
$= 6^2$

(g) $4 \times 4 \times 4 \times 4 \times 4 \times 4$
$= 4^6$

(h) $10 \times 10 \times 10 \times 10 \times 10$
$= 10^5$

5. Write in expanded form.

(a) $5^2 =$ (5)(5)

(b) $6^4 =$ (6)(6)(6)(6)

(c) $x^2 =$ (x)(x)

(d) $(m)^3 =$ (m)(m)(m)

(e) $(n)^2 =$ (n)(n)

(f) $3^4 =$ (3)(3)(3)(3)

6. Evaluate

(a) $\sqrt{16} =$ 4

(b) $\sqrt{36} =$ 6

(c) $\sqrt{20} =$ 4.47

7. Evaluate.

(a) $7^2 + 2^2$

$= 49 + 4$

$= 53$

(b) $4^3 - 2^5$

$= 64 - 32$

$= 32$

(c) $5 + \sqrt{25} - 10 =$

$= 5 + 5 - 10$

$= 0$

(d) 3×2^3

$= 3(8)$

$= 24$

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

$= 9 \times 4$

$= 36$

(f) $4^2 - 6^2 + \sqrt{49} =$

$= 16 - 36 + 7$

$= -13$

(g) $\sqrt{25} + 4^2 - 1^4$

$= 5 + 16 - 1$

$= 20$

(h) $\sqrt{50 - 1}$

$= \sqrt{49}$

$= 7$

(i) $\sqrt{20 - 4} + 2^2$

$= \sqrt{16} + 4$

$= 4 + 4$

$= 8$

(j) $3^2 - \sqrt{8 - 4} + 2^2$

$= 9 - \sqrt{4} + 4$

$= 9 - 2 + 4$

$= 11$

(k) $6^2 + 10^2$

$= 36 + 100$

$= 136$

(l) $\sqrt{14 - 4} + 10^2$

$= \sqrt{10} + 10^2$

$= 3.16 + 100$

$= 103.16$