MIAMI DADE COLLEGE
INTERAMERCIAN CAMPUS
DEPARTMENT OF MATHEMATICS
MAT 0020.
STUDY GUIDE
LAW OF EXPONENTS, PRODUCTS AND
QUOTIENTS OF INTEGERS AND POLYNOMIALS
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Evaluate the expression, given x = -2, y = 3, and a = -4.

1) (5a)(-6x - 3y)

A) 60 B) 420 C) -60 D) 240

Simplify.

2) 7(7y + 7) + 3(y - 5)

A) 52y - 34 B) 49y + 34 C) 52y + 34 D) 52y + 2

3) $(4c)^4 + (-3c)(3c^3)$

A) $-247c^4$ B) $-265c^4$ C) $265c^4$ D) $247c^4$

Evaluate.

4) 5mn where m is 1 and n = 5.

A) -25 B) 20 C) 11 D) 25

5) $\dfrac{(-5)(5 - 3) + (-5)(4)}{(-5)(8 - 4)}$

A) 3 B) 2 C) $\frac{3}{2}$ D) 0

Find the product.

6) $(-2)^5(-3)^2$

A) 60 B) -23 C) 288 D) -288

7) (2x - 4)(2x + 4)

A) $4x^2 - 16$ B) $2x^2 + 16x - 16$ C) $4x^2 + 16x - 16$ D) $4x^2 - 16x - 16$

8) (-10)(-5)(-8)

A) -300 B) -410 C) -400 D) 400

9) $(8mx^6)(-m^6x)$

A) $-8m^7x^7$ B) $8mx^7$ C) $-8m^7x$ D) $-8mx^7$

Simplify. Leave answer in exponential form with positive exponents only. Assume that all variables represent nonzero quantities.

10) $\dfrac{4^8}{4^6}$

A) $\frac{1}{4^2}$ B) 4^6 C) 4^2 D) 4^{14}

11) $(3^3)^{-6}$

A) -3^{18} B) $\frac{1}{3^9}$ C) $\frac{1}{3^{18}}$ D) -3^9

Multiply.

12) $-10ax^6(-7ax^6 + 10x^3 - 10)$

A) $70a^2x^{12} - 100ax^9$ B) $70a^2x^{12} - 100ax^9 + 100ax^6$

C) $70ax^6 - 100x^3 + 100$ D) $70a^2x^{12} + 10x^3 - 10$

13) $(9 + x)(5x - 2)$

A) $5x^2 - 18x + 43$ B) $x^2 + 43x + 43$ C) $5x^2 + 42x - 18$ D) $5x^2 + 43x - 18$

Find the product of the polynomials.

14) $(x + 4)(x^2 - x + 7)$

A) $x^3 + 3x^2 + 3x + 28$ B) $x^3 + 5x^2 + 11x + 28$ C) $x^3 + 28$ D) $x^3 + 3x^2 + 28$

Find the quotient.

15) $\frac{70x^8 - 49x^2 - 42x}{7x}$

A) $10x^8 - 49x^2 - 42x$ B) $10x^8 - 7x^2 - 6x$ C) $70x^7 - 49x - 42$ D) $10x^7 - 7x - 6$

16) $-\frac{4}{13} \div \left(-\frac{1}{5}\right)$

A) $-\frac{4}{65}$ B) $\frac{20}{13}$ C) $\frac{13}{20}$ D) $-\frac{20}{13}$

Write the following in scientific notation.

17) 1,800,000

A) 1.8×10^6 B) 1.8×10^{-7} C) 1.8×10^7 D) 1.8×10^{-6}

Simplify. Assume that all variables represent nonzero quantities.

18) $(-13x)^0 + (-3y)^0$

A) -2 B) 0 C) 2 D) -16

Find the square.

19) $(6a - 5)^2$

A) $36a^2 - 60a + 25$ B) $6a^2 + 25$ C) $36a^2 + 25$ D) $6a^2 - 60a + 25$

Write with positive exponents only.

20) $\frac{(x^5y^{-3})^2}{x^{-5}y^2}$

A) $\frac{x^{10}}{y^6}$ B) $\frac{y^{10}}{x^6}$ C) $\frac{x^{15}}{y^8}$ D) $\frac{y^{15}}{x^8}$

Write a numerical expression for the phrase and evaluate it.

21) The product of 2 and the difference of 9 and -6

A) $2[-6 - 9]$; -30 B) $(2)(9) - (-6)$; 24 C) $2[9 - (-6)]$; 30 D) $(2 - 9)(-6)$; 42

22) The product of -7 and 7, added to 8

A) $8 + (-7)(7)$; -41 B) $(-7 + 8)(7)$; 7 C) $(8)(-7 + 7)$; 0 D) $(-7)(7)(8)$; -392

Write a numerical expression for the phrase and simplify it.

23) The quotient of -36 and the sum of 4 and 14

A) $-36 + 4 + 14$; -18 B) $\frac{-36}{4 - 2}$; 2 C) $\frac{-36}{4 + 14}$; -2 D) $\frac{4 + 14}{-36}$; $-\frac{1}{2}$

Write without exponents and evaluate.

24) $\left(\frac{7}{2}\right)^{-3}$

A) $\frac{343}{8}$ B) $-\frac{8}{343}$ C) $-\frac{343}{8}$ D) $\frac{8}{343}$

Simplify using the laws of exponents.

25) $(4p^2s^2)^4(s^4)$

A) $256p^8s^{12}$ B) $4p^8s^{12}$ C) $256p^6s^{32}$ D) $256p^6s^{10}$

Find the square.

26) $(5m + 12)^2$

A) $5m^2 + 120m + 144$ B) $25m^2 + 144$

C) $25m^2 + 120m + 144$ D) $5m^2 + 144$

Find the product.

27) $(x + 9)(x - 9)$

A) $x^2 - 18$ B) $x^2 - 81$ C) $x^2 + 18x - 81$ D) $x^2 - 18x - 81$

Write the following in standard notation.

28) 7.60×10^4

A) 7600 B) 76,000 C) 760,000 D) 304

29) 1.56×10^{-4}

A) .000156 B) .00156 C) -156,000 D) .0000156

Write with positive exponents only.

30) $\frac{(7z^2)^{-3}(7z^{-4})^3}{(7z^{-2})^3}$

A) $343z^{12}$ B) $\frac{1}{343z^{18}}$ C) $\frac{1}{343z^{12}}$ D) $\frac{343}{z^{12}}$