MAT 099 §5.1 #s 5, 9, 11, 12, 27, 33, 45, 63, 81, 85, 91, 93, 101, 111, 115

#s 1-10 Use the product rule to simplify

(5) $m \cdot m^7 \cdot m^6 = m^{1+7+6} = \boxed{m^{14}}$

(9) $(-4x^3p^2)(4y^3x^3) = (-4)(4)x^3x^3p^2y^3 = \boxed{-16x^6p^2y^3}$

#s 11-18 Evaluate

(11) $-8^0 = \boxed{-1}$ (12) $(-9)^0 = \boxed{1}$

#s 19-28 Use the quotient rule to simplify

(27) $\dfrac{-36a^5b^7c^{10}}{6ab^3c^4} = \left(\dfrac{-36}{6}\right)a^{5-1}b^{7-3}c^{10-4} = \boxed{-6a^4b^4c^6}$

#s 29-48 Simplify & write using positive exponents only.

(33) $\dfrac{x^7}{x^{15}} = x^{7-15} = x^{-8} = \boxed{\dfrac{1}{x^8}}$

(45) $\dfrac{2a^{-6}b^2}{18ab^{-5}} = \left(\dfrac{2}{18}\right)a^{-6-1}b^{2-(-5)} = \dfrac{1}{9}a^{-7}b^7$

$= \dfrac{1}{9} \cdot \dfrac{1}{a^7} \cdot b^7 = \boxed{\dfrac{b^7}{9a^7}}$

#s 49-82 Same instructions.

(63) $4^{-1} + 3^{-2} = \dfrac{1}{4} + \dfrac{1}{3^2} = \dfrac{1}{4} + \dfrac{1}{9}$ LCD = (4)(9) = 36

$= \dfrac{1}{4} \cdot \dfrac{9}{9} + \dfrac{1}{9} \cdot \dfrac{4}{4} = \dfrac{9}{36} + \dfrac{4}{36} = \dfrac{9+4}{36} = \boxed{\dfrac{13}{36}}$

MAT 099 § 5.1 #s 81, 85, 91, 93, 101, 111, 115

(81) $\dfrac{14x^{-2}yz^{-4}}{2xyz} = \left(\dfrac{14}{2}\right)x^{-2-1}y^{1-1}z^{-4-1}$

$= 7x^{-3}y^{0}z^{-5} = \boxed{\dfrac{7}{x^3z^5}}$

#s 83-92 Simplify. Assume that variables in exponents represent nonzero integers and that x, y, z are not zero.

(85) $\dfrac{x^{3t-1}}{x^{t}} = x^{3t-1-t} = \boxed{x^{2t-1}}$

(91) $\dfrac{x^{3t}\cdot x^{4t-1}}{x^{t}} = x^{3t+4t-1-t} = \boxed{x^{6t-1}}$

#s 93-102 Write each # in scientific notation

(93) $31,250,000 = \boxed{3.125\times10^{7}}$
7 6 5 4 3 2 1

(101) $0.000053 = \boxed{5.3\times10^{-5}}$
1 2 3 4 5

#s 103-110 Same instructions.

#s 111-120 Write each number in standard notation.

(111) $3.6\times10^{-9} = \boxed{.0000000036}$

0.000000003.6
9 8 7 6 5 4 3 2 1

(115) 1.278×10^{6}

$= \boxed{1,278,000}$

1.278000000
1 2 3 4 5 6