MT 118, Quiz #8, Fall 2019 Name KEY

Instructions: Show all work. Partial credit can only be given where work is shown. Be sure to answer all parts of each question. You may not use a calculator on this quiz.

1. If a is an integer and $a \neq 0$, which expressions are always positive, and which always negative? (It's possible neither is a response.)

   a. a^3 — either

   b. $(-a)^4$ — always positive

   c. a^4 — always pos.

   d. $-(a)^3$ — either

   e. $(-a)^3$ — either

   f. $-(a)^4$ — always negative

2. Express 0.00000000000008071 in scientific notation.

8.071×10^{-14}

3. Simplify and express $\frac{(1.38\times10^{12})(4.5\times10^{-16})}{1.15\times10^{10}}$ in scientific notation.

5.4×10^{-16}

4. Simplify each expression.

   a. $\frac{24}{-35} + -\frac{15}{49}$

$-\frac{168}{245} + \frac{-75}{245} = -\frac{243}{245}$

   b. $\left(+\frac{\cancel{2}^{1}}{\cancel{7}_{1}} \cdot \frac{23}{-\cancel{27}_{3}}\right) \cdot \left(+\frac{\cancel{7}^{1}}{9}\right)$

$-\frac{23}{27}$

   c. $-\frac{15}{22} + +\frac{31}{48}$

$-\frac{360}{528} + \frac{341}{528} = -\frac{19}{528}$

   d. $-\frac{13}{24} \div -\frac{39}{48}$

$+\frac{\cancel{13}^{1}}{\cancel{24}_{1}} \times +\frac{\cancel{48}^{2}}{\cancel{39}_{3}} = \frac{2}{3}$