Name: * ANSWER KEY * 1/5/2017

Math 71 Elementary Algebra **Quiz 2**

Calculators are not allowed. Box your final answers. If you need more space, you may continue your work on the back of the page.

1. Perform the indicated operation(s) and write your answer as a simple reduced fraction.

(a) (5 points) $\frac{7}{18} - \frac{3}{10} + \frac{2}{15}$ $18 = 2 \cdot 3^2$, $10 = 2 \cdot 5$, $15 = 3 \cdot 5$ (PRIME FACTORIZATION)

$LCD = 2 \cdot 3^2 \cdot 5 = 90$

$$= \frac{7}{18} \cdot \frac{5}{5} - \frac{3}{10} \cdot \frac{9}{9} + \frac{2}{15} \cdot \frac{6}{6} = \frac{35 - 27 + 12}{90} = \frac{20}{90} = \boxed{\frac{2}{9}}$$

(b) (5 points) $\dfrac{\frac{1}{5} + \frac{3}{8}}{\frac{27}{10} - \frac{3}{2}} = \dfrac{\frac{1}{5} \cdot \frac{8}{8} + \frac{3}{8} \cdot \frac{5}{5}}{\frac{27}{10} - \frac{3}{2} \cdot \frac{5}{5}}$

$$= \frac{8 + 15}{40} \div \frac{27 - 15}{10} = \frac{23}{\cancel{40}\,4} \cdot \frac{\cancel{10}\,1}{12} = \boxed{\frac{23}{48}}$$

2. (5 points) Perform the division and write your answer as a mixed number.

$$2\frac{1}{5} \div 1\frac{3}{4}$$

$$\frac{11}{5} \div \frac{7}{4} = \frac{11}{5} \cdot \frac{4}{7} = \frac{44}{35} = \frac{35}{35} + \frac{9}{35} = \boxed{1\ \frac{9}{35}}$$

3. (5 points) Compute the following expression. Give your answer as a simplified fraction.

$$\sqrt{\left(\left(\frac{\cancel{2}}{\cancel{9}_3} \cdot \frac{\cancel{3}}{2} - \frac{\cancel{5}}{\cancel{28}_4} \cdot \frac{\cancel{7}}{\cancel{5}}\right)^2 + \frac{1}{48}\right)} + 1\frac{1}{2}$$

$$\sqrt{\left(\underbrace{\left(\frac{1}{3} - \frac{1}{4}\right)}_{\frac{4}{12} - \frac{3}{12} = \frac{1}{12}}\right)^2 + \frac{1}{48}} + \frac{3}{2} = \sqrt{\frac{1}{144} + \frac{1}{48}} + \frac{3}{2} = \sqrt{\frac{1+3}{144}} + \frac{3}{2}$$

$$= \sqrt{\frac{4}{144}} + \frac{3}{2} = \frac{2}{12} + \frac{3}{2} = \frac{1}{6} + \frac{9}{6} = \frac{10}{6} = \boxed{\frac{5}{3}}$$