

Detective Work

with Complex Fractions

Name _____



As the resident mathematics detective, your job is to determine “Is there anything wrong with these Complex Fraction Problems?”

Directions: Circle any errors in the problem. Find the correct solution. BEWARE: one problem is CORRECT!

1.

$$\frac{\frac{a^2}{16} - 1}{\frac{a}{8} - \frac{1}{2}} = \frac{\frac{a^2}{16} - \frac{16}{16}}{\frac{a}{8} - \frac{4}{8}} = \frac{\frac{a^2 - 16}{16}}{\frac{a - 4}{8}} = \frac{a^2 - 16}{16} \div \frac{a - 4}{8} = \frac{a^2 - 16}{16} \cdot \frac{8}{a - 4} = \frac{a - 4}{2}$$

2. -----

$$\frac{\frac{3}{2} + \frac{3}{x}}{2 + \frac{4}{x}} = \left(\frac{3}{2} + \frac{3}{x} \right) \div \left(2 + \frac{4}{x} \right) = \left(\frac{3x + 6}{2x} \right) \div \left(\frac{2x + 4}{x} \right)$$

$$= \frac{3x + 6}{2x} \cdot \frac{2x + 4}{x} = \frac{6x^2 + 24x + 24}{2x^2}$$

3. -----

$$\frac{\frac{1}{a} + \frac{2}{b}}{a} = \frac{\frac{b + 2a}{ab}}{a} = \frac{b + 2a}{ab} \cdot \frac{1}{a} = \frac{b + 2a}{a^2b}$$

4. -----

$$\frac{xy^{-1} + 1}{2 + x^{-1}} = \frac{\frac{1}{xy} + 1}{2 + \frac{1}{x}} = \frac{\frac{1 + xy}{xy}}{\frac{2x + 1}{x}} = \frac{1 + xy}{xy} \cdot \frac{x}{2x + 1} = \frac{1 + xy}{y(2x + 1)}$$