

Math 095
Exam 2

1) Factoring:

a) Factor out a -1 from the following terms: $\frac{m^3}{4} - \frac{1}{m}$

b) Factor quadratic #1: $2y^2 + 7y + 6$

2) Domain and Vertical Asymptotes:

Let $f(x) = \frac{(x-3)}{x^2 + 4x - 45}$. Determine the domain of the function and find the vertical asymptotes of the graph of the function..

3) Multiplying and Dividing Rational Expressions

a) Multiply and if possible simplify: $\frac{y^2 - 16}{4y + 12} * \frac{y + 3}{y - 3}$

b) Divide and if possible simplify: $\frac{16x^6}{3y^5} \div \frac{8x}{6y^3}$ (no negative exponents)

4) Adding and Subtracting Rational Expressions: Perform the indicated operation and simplify

a) $\frac{x-7}{x^2-16} - \frac{x-1}{16-x^2}$

b) $7 - \frac{x-4}{x-5}$

9) Complex Rational Expressions: (simplify the complex rational expressions)

a)
$$\frac{\frac{3x}{y} - x}{2y + \frac{y}{x}}$$

b)
$$\frac{\frac{a^{-1} + b^{-1}}{a^2 - b^2}}{ab}$$

6) Rational Equations:

a) Solve: $\frac{x-2}{x^2-9} = \frac{1}{x^2-9}$

b) Solve: $\frac{12}{15} - \frac{1}{3x} = \frac{4}{5}$

7) Applications

Sara takes three hours longer to paint a floor than it takes Kate. When they work together, it takes them 2 hours. How long would it take to do the job alone?