

Name: _____

Student #: _____

Date: _____

T.A. #: _____

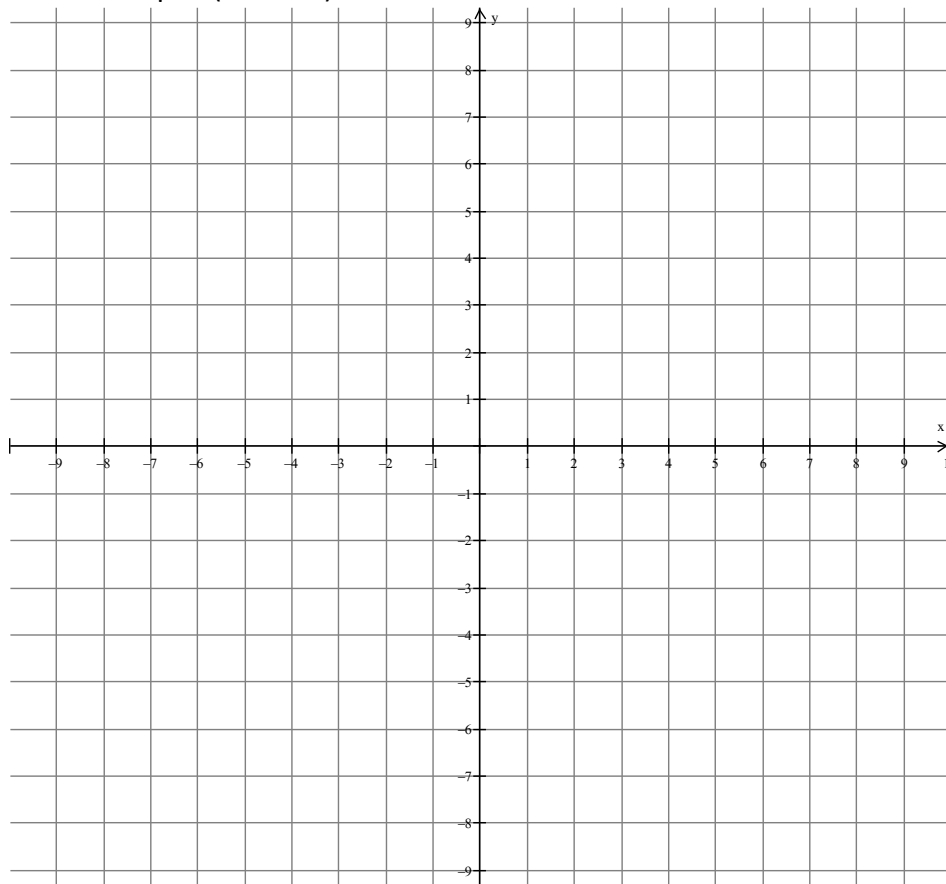
Mathematics 12 Pre-Calculus
LEARNING GUIDE 16 TEST – RATIONAL FUNCTIONS

/20

***Full marks will NOT be given for the final answer only.**

When using a calculator, you should provide a decimal answer that is correct **to at least two decimal places** (unless otherwise indicated). Such rounding should occur **only** in the final step of the solution.

1. Sketch the graph of $y = \frac{2-6x}{x-2}$ and determine the equations of any asymptotes and intercepts. (4 marks)



/4

2. Create a rational function with asymptotes at $x = -2$ and $y = 4$. (2 marks)

3. For the function $f(x) = \frac{x^2 - 16}{x^2 + 7x + 12}$:

a) Determine the values of x where an asymptote occurs. (1 mark)

b) Determine the values of x where a point of discontinuity exists. (1 mark)

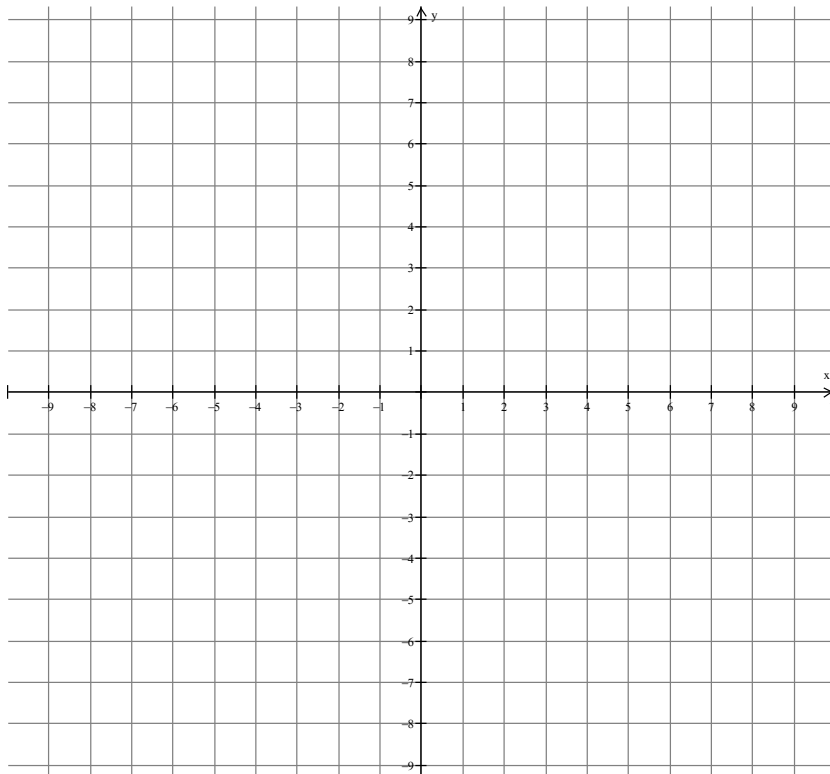
c) Determine the x and y intercepts of the function (2 marks)

4. Solve the following equation algebraically. (3 marks)

$$\frac{2}{x} = \frac{x}{x+3} - 1$$

5. Solve the following equation graphically. (3 marks)

$$\frac{3x^2 + 4x - 15}{x + 3} = 2x - 1$$



6. A ski club charters a bus for a ski trip at a cost of \$480. In an attempt to lower the bus fare per skier, the club invites non-members to go along. After five non-members join the trip, the fare per skier decreases by \$4.80. How many club members are going on the trip? (4 marks)