name: _____

Assignment 7

Math621B January 25, 2022

Part A: One mark each. No work required. Just write the answer. (6)

1. What is/are the vertical asymptote(s) for $y = \frac{x^2-25}{x^2+x-20}$

2. Find the x-intercept(s) for $f(x) = \frac{x^2-3x+2}{x^2+4x+3}$

3. Given $f(x) = \sin x$ and $g(x) = \sqrt{10+x}$ create an equation for $(f \circ g)(x)$

4. Evaluate $f(g(5))$ given $f(x) = \sqrt{2x+6}$ and $g(x) = 3x^2 - 1$

5. How many ways can you eat at a buffet if there are 10 salads, a main course choice of chicken, beef or salmon, 5 sides, and 8 desserts?

6. How many ways can the letters in the word ASSIGNMENTS be arranged?

Part B: Show all your work for this section (16).

1. Graph $y = \frac{(x-1)^2}{1-x^2}$ (4)

2. Solve $\frac{3x^2+4x-15}{x+3} = 2x - 1$ (4)

3. Given f={(1,12), (2,10), (4,3), (5,7), (9,5)} and g={(1,5), (3,6), (5,2), (7,1)}, write $f \circ g$ and $g \circ f$ (2)

4. Expand $(4x+2)^5$ (3)

5. How many ways can you (3)
   a. Pick the Gold, Silver, Bronze medal winners from a field of 15 skiers?
   b. Pick 5 pizza toppings from a list of 18 choices?
   c. Rearrange 15 chairs if there are 4 blue, 3 black, 5 red, 3 green.