

# Quiz 5

Math 3C: Precalculus

November 7, 2019

When you finish, please remain seated until class is dismissed

Name: Solutions

PID: \_\_\_\_\_

**Problem 1** (8 points). Let

$$h(a) = \frac{-(a-2)(a+1)}{(a-3)(a+3)(a-2)}$$

(a) What are the horizontal asymptotes of  $h(a)$ ?

See Version A solutions (same answer)

(b) What are the vertical asymptotes of  $h(a)$ ?

See Version A solutions (same answer)

(c) Does  $h(a)$  have any holes? If so, where?

Yes.  $a=2$  makes both numerator and denominator equal zero, so there is a hole at  $a=2$ .

To find vertical coordinate of hole:

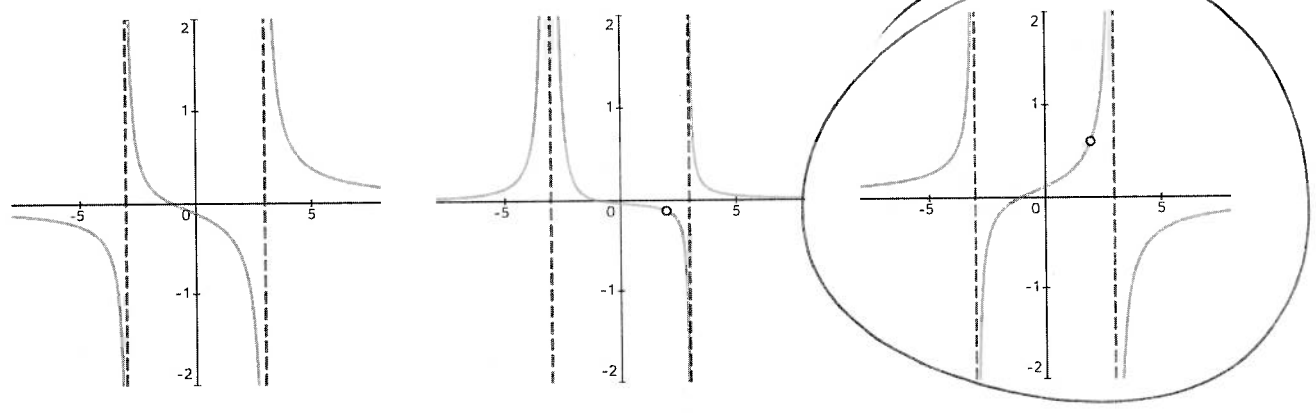
$$\frac{-(a-2)(a+1)}{(a-3)(a+3)(a-2)} = \frac{-(a+1)}{(a-3)(a+3)} \rightarrow \frac{-(2+1)}{(2-3)(2+3)} = \frac{-3}{-1 \cdot 5} = \frac{3}{5}$$

Version B

THERE IS A SECOND PAGE

Hole at  $(2, \frac{3}{5})$

(d) Which of the following graphs could potentially be the graph of  $h(x)$ ? circle one



**Problem 2** (2 points). Suppose you have an investment account with \$1000 in it that generates interest. If the interest rate is 5% compounded annually, what is the amount of money in the account after 1 year?

5% interest per year.

5% of 1000 is

$$0.05 \cdot 1000 = 50$$

After 1 compound (i.e. after 1 year), balance is

$$1000 + 50 = \underline{\underline{1050}}$$

↑  
Balance before interest

↑  
interest

5% annual rate, one compounding per year means  $\frac{5\%}{1} = 5\%$  increase each interest payment.

So balance is multiplied by 1.05 each payment.

$$1000 \cdot 1.05 = \underline{\underline{1050}}$$

Two possible methods