0. THE FINAL EXAM FOR THIS CLASS IS

MON/WED CLASS: 10:00 – 11:50 MONDAY, MAY 6

TUE/THU CLASS: 12:30 – 2:20 THURSDAY, MAY 9

WHEN IS THE FINAL EXAM FOR THIS CLASS?

WRITE IT (THE WHOLE THING!) HERE → _____ (+1pt)

IMPORTANT: YOU MAY USE ONLY THE METHODS DISCUSSED IN CLASS. IF YOU USE METHODS NOT DISCUSSED IN CLASS OR IF YOU DO NOT SHOW YOUR WORK IN A NEAT AND ORDERLY FASHION, YOU FORFEIT YOUR CLAIM TO ANY CREDIT.

I. MULTIPLE CHOICE. WRITE IN THE BLANK SPACE THE LETTER CORRESPONDING TO THE CORRECT RESPONSE. **PLEASE USE ONLY CAPITAL LETTERS**. NOTE THAT THE SYMBOL "$\mathbb{R}$" REPRESENTS "ALL REAL NUMBERS".

I. MULTIPLE CHOICE.

1. _____ WHAT IS THE Y-INTERCEPT FOR THE FUNCTION $f(x)=(x-2)^2(x+1)$?

A. $(0,2)$ B. $(4,0)$ C. $(0,4)$ D. IT HAS NO Y-INTERCEPT E. NONE OF THESE

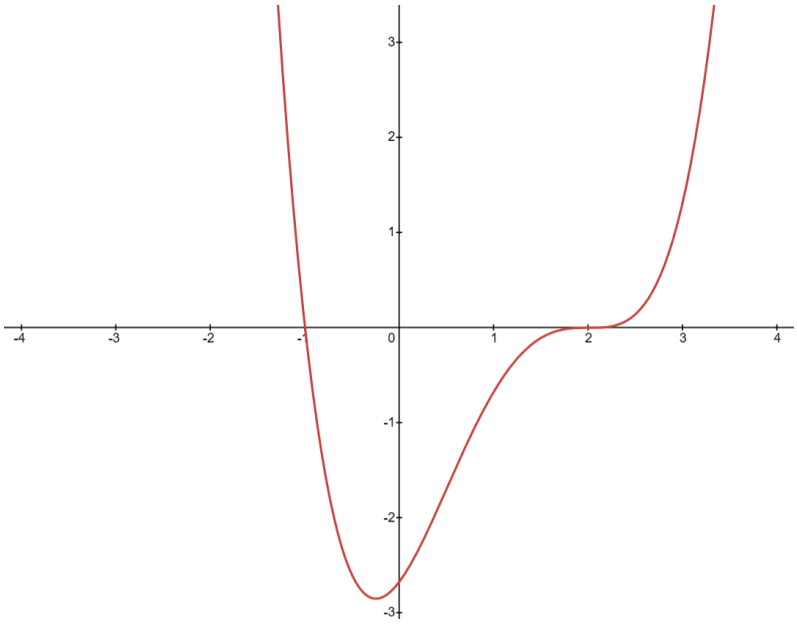
2. _____ WHICH POINT IS AN X-INTERCEPT OF THE FUNCTION $f(x)=(x-2)^2(x+1)$?

A. $(-2,0)$ B. $(\sqrt{2},0)$ C. $(1,0)$ D. $(0,2)$ E. NONE OF THESE

3. _____ WHAT IS THE DEGREE OF THE FUNCTION $f(x)=-4x^3-6x^5+7$?

A. 4 B. –4 C. 3 D. 5 E. NONE OF THESE

4. _____ THE POINT $(2,0)$ IS AN X-INTERCEPT OF THE GIVEN FUNCTION. WHAT IS ITS MULTIPLICITY?

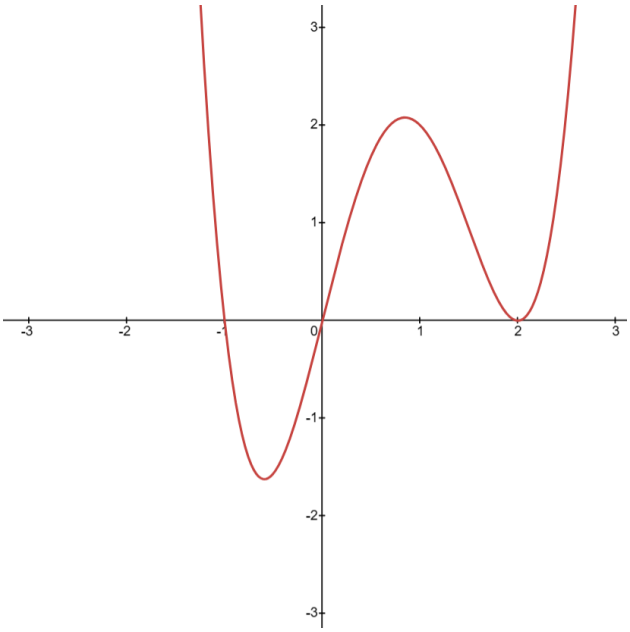


A. 1 B. 2 C. 3 D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

5. _____ WHEN WORKING WITH A RATIONAL FUNCTION, WHAT IS FOUND BY SETTING THE NUMERATOR EQUAL TO ZERO AND SOLVING?

A. THE Y-INTERCEPT B. THE X-INTERCEPT(S) C. THE VERTICAL ASYMPTOTE(S)
D. HORIZONTAL ASYMPTOTE E. NONE OF THESE

6. _____ WHICH FUNCTION CORRESPONDS TO THE FOLLOWING GRAPH? HINT: FIND INTERCEPTS AND CHECK MULTIPLICITIES.



A. $f(x) = -x(x+1)(x-2)^2$ B. $f(x) = x^2(x+1)(x-2)$ C. $f(x) = x(x+1)(x-2)^2$
D. $f(x) = x(x+1)^2(x-2)$ E. NONE OF THESE

7. _____ WHAT IS THE Y-INTERCEPT FOR THE FUNCTION $f(x) = x^3 + 4x^2 - 5x + 5$?

A. $(5,0)$ B. $(0,5)$ C. $(0,0)$ D. IT HAS NO Y-INTERCEPT E. NONE OF THESE

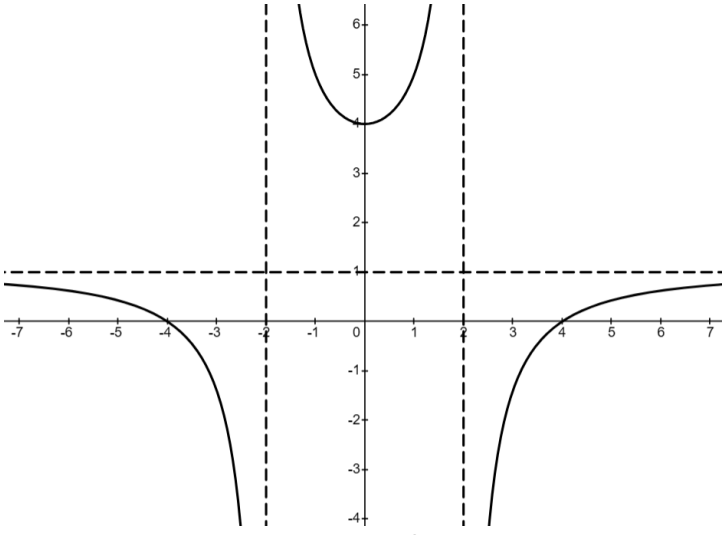
8. _____ WHERE ARE THE **VERTICAL** ASYMPTOTES FOR THE GRAPH OF $f(x) = \dfrac{x^2-9}{x^2-4}$?

A. $y = \pm 3$ B. $x = \pm 2$ C. $x = \pm 4$ D. $y = \pm 2$ E. NONE OF THESE

9. _____ WHERE IS THE **HORIZONTAL** ASYMPTOTE FOR THE GRAPH OF $f(x) = \dfrac{x^2-9}{x^2-4}$?

A. $y = \pm 3$ B. $x = \pm 2$ C. $y = 1$ D. $y = \pm 2$ E. NONE OF THESE

10. _____ WHAT FUNCTION HAS THE FOLLOWING GRAPH? HINT: LOOK FOR ASYMPTOTES, INTERCEPTS, AND MULTIPLICITIES.



A. $f(x) = \dfrac{x^2-4}{x^2-16}$ B. $f(x) = \dfrac{x-4}{x^2-4}$ C. $f(x) = \dfrac{x^2-16}{x^2-4}$
D. NOT ENOUGH INFORMATION IS GIVEN E. NONE OF THESE

II. CAREFULLY GRAPH OF EACH FUNCTION. BE SURE TO **SHOW ALL YOUR WORK AS DEMONSTRATED IN CLASS**. BE SURE TO
a) **STATE EACH STEP** AS YOU DO IT
b) PLOT ALL IMPORTANT VALUES AND
c) **LABEL** ALL POINTS YOU PLOT!

1. $f(x) = x^2 - 6x + 5$

2. $f(x) = x^2(x-4)^3$

CONTINUE GRAPHING

3. $f(x) = x^3 - x^2 - 9x + 9$

4. $f(x) = \dfrac{x-1}{x^2-16}$

CONTINUE GRAPHING

5. $f(x) = \dfrac{2x-1}{x+3}$