

QUIZ 3 - MATH 140

Friday, September 18

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Perform the long division and write your answer in an appropriate form

$$(x^5 - x^3 + 5x - 9) \div (x^2 - 5).$$

2. [4 points] Consider the rational function $f(x) = \frac{(x+5)(x+1)}{(x+3)^2(1-x)}$.

(a) $\text{Dom}(f) =$

(b) Vertical asymptotes are

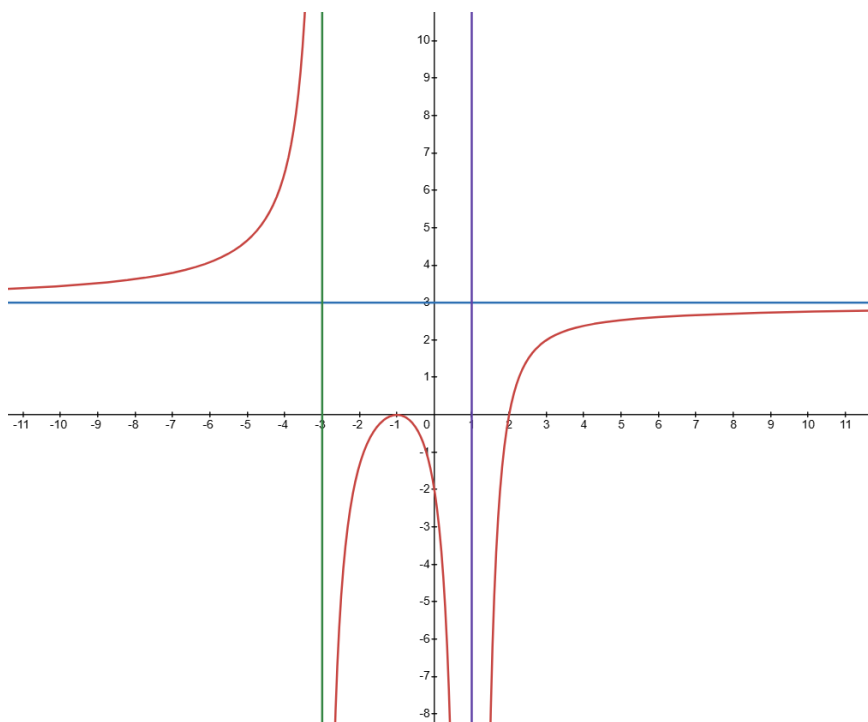
(c) Horizontal asymptote is

(d) The y -intercept is

(e) The x -intercepts are

(f) Roughly sketch the graph by hand.

3. [4 points] Consider the rational function $f(x)$ whose graph is shown below.



(a) $\text{Dom}(f) =$

(b) Vertical asymptotes are

(c) Horizontal asymptote is

(d) The y -intercept is

(e) The x -intercepts are

(f) Find a possible formula for $f(x)$.