

### Quiz 2 Practice Test

1. (4 pts; a = 1, b = 3 )

Given that  $f(x) = 3x^2 - 2x - 8$  and

$$g(x) = -3x - 4,$$

(a) Write  $f(x)$  in vertex form

(b) Find the intersections of  $f$  and  $g$ , if possible, algebraically and verify your solution graphically.

2. (4 pts; a = 1, b = 1, c = 2)

$$\text{Let } f(x) = (x^2 - 5x + 4)(x - 2) + 2(x - 2)$$

(a) Analyze the ending behavior of  $f(x)$

(b) describe the details of the function around the zeros

(c) Use your results from (a) and (b) to sketch  $f(x)$

3. (4 pts)

Find all rational zeros for

$$f(x) = 6x^4 - x^3 - 7x^2 + x + 1$$

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4.(8 pts)

Given  $f(x)$  and its domain,

(a) find  $f^{-1}(x)$  ,

(b) Identify the domains and ranges for both  $f(x)$  and  $f^{-1}(x)$

$$f(x) = \frac{3x-2}{2x-2}, x < 1$$

5.(8 pts)

Use  $f(x)$  from question 4

(a) Graph both  $f(x)$  and  $f^{-1}(x)$  on the same xy-plane

(b) Find the intersections of  $f$  and  $f^{-1}$  if possible, algebraically as well as graphically.