

Exam 3 Sample Short Answer Questions

Exam 3 will have two short answer questions:

- The **first** will be about **graphing polynomials**, similar to questions from **sections 5.2 and 5.3**. You will be expected to sketch a graph of a polynomial with the correct end behavior, roots and multiplicities, degree, etc. A coordinate axis will be provided for you to sketch on.
- The **second** will be similar to a problem from this list:

Section 5.6

1. Find all zeros, vertical asymptotes, and removable discontinuities (if any) of the rational function

$$f(x) = \frac{x-7}{x^2-16}.$$

2. Find all vertical asymptotes, horizontal asymptotes, and removable discontinuities (if any) of the rational function $f(x) = \frac{(8x-6)(-6x-5)}{(x+4)(4x-6)}.$

3. Find the leading term of the slant asymptote of the function $f(x) = \frac{6x^2+28x+20}{2x+6}.$

Section 5.7

4. Find a formula for the inverse of the function $f(x) = \sqrt{8+3x}$ and state the domain (of the inverse).
5. Find a formula for the inverse of the function $f(x) = 9 - \frac{5}{x^2}, x < 0.$

Section 6.1

6. Find a formula for the exponential function that satisfies $f(0) = 2$ and $f(1) = 6.$
7. If $Q = 35.1(0.695)^t$, give the starting value a , the growth factor b , and the growth rate r if $Q = a * b^t = a(1+r)^t.$