Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Block:\_\_\_

Practice.

Test: Unit 6 and 11

Rational expressions + Polynomials

There are  **10 questions** in this quiz. Question number has larger weight.

Standard test time is **40 minutes**.

Four operations calculator is allowed.

==============================================================================

**Some reminders**

======= Start of test

1. Simplify. Remember to note excluded values.

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1. Solve. Show your work!

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1. Divide using long division.
2. Divide using synthetic division.
3. Given the expression:
   1. Write the polynomial in standard form

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. How many terms are there in \_\_\_\_\_\_\_\_\_\_\_
  2. What is the degree of the polynomial? \_\_\_\_\_\_\_\_\_\_\_
  3. What is the sign of the leading coefficient? \_\_\_\_\_\_\_\_\_\_\_
  4. What is the end behavior of the graph? \_\_\_\_\_\_\_\_\_\_\_
  5. It is given that the polynomial has a root at , and another root at . Find the remaining roots of the polynomial (There’s a place to write these on the next page).

(Hint: Start by dividing with the root at )

Roots:

1. \_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_

* 1. Write the polynomial in a factored form.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. What is the y-intercept of the polynomial?

\_y-intercept = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Utilizing all the information gathered above (and only this information), plot P(x) in the graph below.



This is an extra question for practice. You MAY get a question like this in the test (namely, with complex root).

1. Given the expression:
   1. Write the polynomial in standard form

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. How many terms are there in \_\_\_\_\_\_\_\_\_\_\_
  2. What is the degree of the polynomial? \_\_\_\_\_\_\_\_\_\_\_
  3. What is the sign of the leading coefficient? \_\_\_\_\_\_\_\_\_\_\_
  4. What is the end behavior of the graph? \_\_\_\_\_\_\_\_\_\_\_
  5. It is given that the polynomial has a root at , and another root at . Find the remaining roots of the polynomial (There’s a place to write these on the next page).

(Hint: Start by dividing with the root at .)

Roots:

1. \_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_

* 1. Write the polynomial in a factored form.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. What is the y-intercept of the polynomial?

\_y-intercept = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Utilizing all the information gathered above (and only this information), plot P(x) in the graph below.



===== End of test