Midterm Review Spring 2018 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the inverse relation to the set of ordered pairs {(10, -5), (–2, 7), (0, 2), (8, –12)}?
2. What are the increasing and decreasing intervals of the graph shown?



1. Find the inverse function of ..
2. If the function   is shifted up 2 units and right 5 units and flipped, what is the new function?

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| https://static2-cdn.schoolnet.com/19.1.4/static/19.1.0/images/spacer.gif | A | The value of *f(x)*will exceed the value of *g(x)* for all values of *x*. |
| https://static2-cdn.schoolnet.com/19.1.4/static/19.1.0/images/spacer.gif | B | The value of *f(x)* will exceed the value of *g(x)* for all values of *x* greater than or equal to 0. |
| https://static2-cdn.schoolnet.com/19.1.4/static/19.1.0/images/spacer.gif | C | The value of *f(x)* will never exceed the value of *g(x)*. |
|  | D |

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| The value of *f(x)* will exceed the value of *g(x)* for all values of *x* approximately between 1 and 2. |

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1. Two functions are shown below.

Which statement is true?

1. Solve for x:
2. Solve |2 + x| +4 < 18.
3. Write the polynomial expression of least degree with the roots -3i and -2.
4. Suppose Karen has $10,000 from investing in an account that pays 2.5% interest compounded quarterly at the end of 8 years.  Approximately how much was her initial investment?
5. The graph of the function, , is shown on the coordinate plane.  Which value is closest to  ?
6. Draw the graph is represented by the function.
7. What is the range of
8. Given  , find
9. William and Sam each have $550 to invest. William’s investments earn a rate of 12%, and Sam’s investments earn a rate of 6.5%. **Approximately**, how much more money will William have than Sam when Sam’s investments are worth $820? (Assume continuous compounding, and round to the nearest hundredth of decimal.)
10. Suppose . The remainder of the division of P(x) by (x + 1) is 1.  What is the remainder of the division of P(x) by (x - 1)?
11. Is the given binomial, (x + 1) a factor of
12. Graph and its inverse by hand.
13. Two piecewise functions are shown below.

What is the value of

1. Find the inverse function of
2. The expression  can be written in the form  where is the quotient,  is the remainder, and is the divisor.  What expression is equivalent to ?
3. Solve:
4. Find the original function if  .
5. You work in the quality control department of a manufacturing company. The diameter of a drill bit must be between 0.83 inch and 0.85 inch. Write an absolute-value inequality to represent this requirement.
6. The Drama Club is holding a car wash to raise money. The club spent $85 on materials and supplies. The club earns $10.25 for each car they wash. What is the inverse to the function of how much the club earns per cars washed?
7. Given  is a transformation of the graph , write the correct equation for ? 
8. The volume of a box is given by the polynomial  What is the realistic domain?
9. Find the remainder when  is divided by .
10. How long will it take $2000 to triple if it is invested in an account that pays 2% compounded continuously?
11. Given   and   Find
12. Find all roots of the function