

Name: _____
Date: _____
Class: _____

Algebra
Unit 8
PS

Remember, this assignment is 15 points of your 100 point test grade. You can have this assignment checked as many times as you wish prior to the test. It is due at the beginning of class the day you take the test

1) [3] Solve: $3x^3 - 147x = 0$

2) [3] Solve: $x^2 - 384 = 8x$

3) [4] Solve: $-10x^2 = -67x + 112$

4) [4] Solve: $9x^3 - 342x^2 + 720 = 0$

5) [4] Solve: $(x - 2)^2 + (x - 4)^2 = 4$

6) [3] Solve: $x^2 + 11x + 210 = 42 - 15x$

7) [3] If the area of a triangle is 112, and the area can be represented by $x^2 + 2x - 8$, find the base and height of this triangle.

8) [3] If the width of a rectangle is 10 more than the length, create an expression that could be used to find the area of this rectangle. What would the area be if the width was 42?

9) [3] If the product of two consecutive odd integers is 255, find all possible sets of integers that would satisfy this requirement.

10) [4] Jim is thinking of two numbers. The 2nd number is 8 less than twice the first number. The product of these two numbers is equal to 10 more than 10 times the 2nd combined with 5 times the first.

11) [3] If the area of a square is the same as 20 more than twice its perimeter, find out the length of a side of the square.

12) [3] Solve the system of equations: $y = x^2 - 6x + 11$ and $y = x^2 - 8x + 22$

13) [3] Solve the system: $f(x) = x^2 + 8x + 13$ and $g(x) = x + 1$

14) [4] Find the maximum or minimum point and the zeroes of the following function:
 $q(x) = x^2 - 6x + 5$

15) [4] Sketch a graph of $t(x) = 12x^2 - 44x + 35$, draw and label the axis of symmetry, state the range of this function, and state one interval that the function is increasing on.

16) [2] In #15, on what domain is the function negative?

17) [4] A person dives into the water and their position under water can be found using the function $d(x) = 2x^2 - 12x$, where negative number represent feet below the surface of the water and x shows the number of seconds that have occurred. Sketch a graph of this dive. What would be an appropriate domain to use for this graph and why? What is the deepest point the diver gets under the water. How long is the diver under the water for?