Algebra 2   Name_____ ID: 1

Unit 1 Test Review   Date_____ Period____

1) Simplify: $\sqrt{-288} - \sqrt{-98}$

2) Simplify: $\sqrt[3]{-4a^{10}b^1} \cdot \sqrt[3]{14a^4b^{20}}$

3) Simplify the following:

i^{26} i^{29} i^{83}

i^{114} i^{35} i^{43}

Simplify.

4) $5i - 6i$

5) $4 - 3i + 1 - 5i$

6) $8i(3 + 5i)$

7) $-i \cdot -6i(8 - 8i)$

8) $\dfrac{10}{9 + 10i}$

9) $\dfrac{9 + 4i}{i}$

10) $\dfrac{2 - 9i}{7 + 7i}$

Solve each equation by taking square roots.

11) $4r^2 = 304$

12) $9n^2 = -36$

13) $2v^2 + 5 = 145$

14) $6p^2 - 10 = -55$

Solve each equation with the quadratic formula.

15) $6m^2 - 6m - 13 = 0$

16) $11p^2 + 10p - 2 = 0$

17) $4x^2 - 3x + 4 = 0$

18) $7x^2 - 2x + 12 = 0$

Simplify.

19) Find the perimeter of a rectangle with a length of $8 - 2\sqrt{3}$ feet and a width of $1 + 4\sqrt{3}$ feet

20) Find the area of a square with side length $3\sqrt{2} + 8$.

21) Alyssa and Aaron were having a competition to finish their homework. Alyssa finished in $3\sqrt{27}$ seconds, Aaron finished in $4\sqrt{45}$ seconds.

a) What was their total time?

b) Alyssa noticed the clock was off by an EXTRA $\sqrt{75}$ seconds. What was their total time after for removing the extra time?

22) The area of a triangle is $2 - 3\sqrt{5}$ cm^2. If the base measures $10 - 8\sqrt{5}$ cm, find the height.