# Algebra 2 & Trigonometry Test Review Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 2B – Quadratic Functions and Relations Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_**

**Target 1**: Simplify an expression containing complex numbers and or radicals.

|  |  |  |
| --- | --- | --- |
| **1-15: Simplify each expression. Circle your final answer.** | | |
| **1.** *i* + 3 + | **2.** (–6 – 12*i* ) – (–8 + 23*i* ) | **3.** (7 – 3i)(8 + 4i) |
| **4.** | **5.** | **6.** (3i)( –2i)(5i) |
| **7.** *i* 163 | **8.** *i* 236 | **9.** *i* 42 |
| **10.** 2*i* (–8 + 5*i*) | **11.** (3 – *i* )2 | **12.**  (10 – 4i) – (7 + 3i) |
| **13.** | **14.** | **15.** |

**Target 2**: Solve a quadratic equation over the set of complex numbers using the most efficient method

(factoring, square roots /completing the square or the quadratic formula).

|  |  |  |
| --- | --- | --- |
| **16-27: Solve each quadratic using the most efficient method: factoring, taking square roots, completing the square, or the quadratic formula. There are 3 problems per method.** *Circle the final answer.*  *Irrational answers must be written in simplified radical form (no decimals).* | | |
| **16.** 4x2 +20 = 0 | **17.** 7x2+ 6x + 2 = 0 | **18.** x2 – 4x = 13 |
| **19.** 6 = x2 – x | **20.** x2 – 2x + 10 = 0 | **21.** 3(x + 1)2 + 4 = 22 |
| **22.** 3x2 + 2x – 1 = 0 | **23.** x2 + 1 = 33 | **24.** 4x2 – 25 = 0 |
| **25.** x2 + 16x – 7 = 0 | **26.** 4x2 + 5x – 6 = 0 | **27.** x2 – 9x = 0 |

**Target 3:** Write a quadratic equation in any form given a combination of its parts.

|  |  |  |
| --- | --- | --- |
| **28-36: Write a quadratic function in standard form for the information given.** | | |
| **28.** roots: x = {–8, 7} and has a  y-intercept of (0, –280) | **29.** vertex: (–4, 6) and contains the point: (–1, 9) | **30.** x-intercepts: –1, 6 and contains the point: (1, -20) |
| **31.** roots: x = {2*i*} | **32.** Max at (–1, 4)and contains the  point (2, –14) | **\*33.** roots: x = {33*i*} |
| **34.** | **35.** | **36.** |

**Target 4:** Solve non-linear systems of equations algebraically and graphically.

|  |  |  |
| --- | --- | --- |
| **37-39: Graph each system below. Then solve it algebraically in the space on the right.** | | |
| **37.**  y = x2  y = 8 – x2 |  | |
| **38.**  x + y = 8  y = – (x – 4)2 + 4 |  |  |
| **39.**  –2x2 = y – 9  y = 3(x – 2)2 – 3 |  |  |

**Target 5:** Answer the essential questions and related questions regarding the unit.

**ESSENTIAL QUESTIONS: Be ready to do an essay on any of these questions on the test day!**

1. How do the parameters of a function determine the shape of its graph?
2. How do you tell which method to solve quadratic equations is best?
3. Why is it important to learn a variety of methods for solving quadratic equations?
4. What are the zeros of a quadratic function?
5. What real life situations model a quadratic function?
6. Why is it important to know all the forms of a quadratic function?