

Instructions: These problems are for you to use to test yourself, **after** you have practiced with the routine homework assignments, to see how ready you are for Test 2. They are not meant as a substitute for regular and diligent practice!

Do the following problems as if you were taking a test: without notes or textbook, and give yourself a time limit as stated at the start of each self-test. At the end of that time, check your answers: answers, along with references for review, will be provided on a separate sheet through the class blog. Then review as needed before you do the next self-test.

Self-Test:

Part A: Allow 40 minutes

- 1) Rewrite using rational exponents: $\sqrt[3]{x^5}$
- 2) Rewrite as a fraction reduced to lowest terms: $25^{-\frac{3}{2}}$

In #3-5: Multiply and simplify. Use the special products patterns (difference of squares, or square of a binomial) where appropriate.

- 3) $(3\sqrt{8})(4\sqrt{5})$
- 4) $(5 - 3\sqrt{2})^2$
- 5) $(2\sqrt{5} - \sqrt{3})(2\sqrt{5} + \sqrt{3})$

In #6-7: Rationalize the denominator and simplify: use the difference of squares pattern where appropriate

- 6) $\frac{4}{\sqrt{7}-1}$
- 7) $\frac{3}{2\sqrt{3}+3\sqrt{5}}$

For Parts B-D, allow 55 minutes

Part B: Solve each equation. Simplify all answers completely: do not use decimals.

- 8) (corrected version)
 $\sqrt{14 - 5x} = x$
- 9) $7 = \sqrt{y^2 - 50} - y$

Part C: Perform the indicated operations and express the result as a complex number in standard form $a+bi$. Use special product patterns where appropriate.

- 10) $(-7 + 3i) - (9 - 5i)$
- 11) $(-2 - 3i)(4 - 8i)$
- 12) $\frac{5}{2-3i}$

Part D: solve using the indicated method

- 13) Solve by factoring (using the Zero Product Principle): $x^2 - 17x = 0$
- 14) Solve by using the Square Root Property: simplify your answer completely $3x^2 + 72 = 0$