

NAME _____

DATE _____

ALGEBRA II WORKSHEET: TOPICS WITH COMPLEX NUMBERS

1-5. Factor each polynomial completely.

1. $9a^2 + 256$

2. $16a^8 + 100$

3. $441 + 64c^6$

4. $(2a - 3)^2 + (b - 2)^2$

5. $2(3x - 2)^2 + 98$

6. $(x - 7)^5 + (x - 7)^3$

7-10. Simplify each expression completely.

7. $\frac{8 - 3i}{4i}$

8. $\frac{i}{4 + 5i}$

9. $\frac{13}{1 - i\sqrt{5}}$

10. $\frac{6 + i\sqrt{7}}{6 - i\sqrt{7}}$

11-15. Solve each equation for the variables.

11. $7 + 8i = a + 4bi$

12. $2x^2 + 11x - bi = -12 + 11i$

13. $11 + (4 + 5x)i = (-3a + 7) + 19i$

14. $(2a + 3b) + (a - 5b)i = 7 + 10i$

15. $(7a - 8b) + (a + 6b)i = 2 + 11i$

16-17. Solve each equation using the Quadratic Formula.

16. $-d^2 + 7d = 20$

17. $(t - 1)(t + 5) = -16$

18.

		Course			Total
		Algebra I	Geometry	Algebra II	
Gender	Female	35	53	62	150
	Male	44	59	57	160
	Total	79	112	119	310

A group of tenth-grade students responded to a survey that asked which math course they were currently enrolled in. The survey data were broken down as shown in the table above. Which of the following categories accounts for approximately 19 percent of all the survey respondents?

- A) Females taking Geometry
- B) Females taking Algebra II
- C) Males taking Geometry
- D) Males taking Algebra I

19.

Alma bought a laptop computer at a store that gave a 20 percent discount off its original price. The total amount she paid to the cashier was p dollars, including an 8 percent sales tax on the discounted price. Which of the following represents the original price of the computer in terms of p ?

- A) $0.88p$
- B) $\frac{p}{0.88}$
- C) $(0.8)(1.08)p$
- D) $\frac{p}{(0.8)(1.08)}$