

Name: _____

Date: _____ Period: _____

SECONDARY MATH II
Module 3 Study Guide: Quadratic Equations

Directions: Show ALL work.

Simplify the following expressions using exponent rules and relationships. Write your answers in exponential form with no negative exponents in your answer.

1. $\frac{5^3}{5^2}$

2. $x^4 \cdot x^6$

3. $\frac{7^{-2}y^2}{7^{-8}y}$

Simplify each radical below, using $i = \sqrt{-1}$ or $i^2 = -1$ if necessary.

4. $\sqrt{18}$

5. $\sqrt[3]{32}$

6. $\sqrt{-45}$

Simplify the following imaginary/complex numbers.

7. $(2i)(5i)$

8. $2i^2$

9. $(3 + 2i) + (4 - i)$

Simplify the following radicals.

10. $3\sqrt{2} + 4\sqrt{2} - \sqrt{2}$

11. $\sqrt{27} - 2\sqrt{3} + 2\sqrt{6}$

12. $(-4\sqrt{5}) \cdot (2\sqrt{3})$

Solve the following quadratic equations for the x-intercepts (also called roots, zeroes, or solutions) by factoring, completing the square, taking square roots, or using the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Simplify radicals as much as possible and use $i = \sqrt{-1}$ or $i^2 = -1$ if necessary. Round any decimals to two decimal places.

13. $x^2 - 8x = -12$

14. $n^2 - 24 = 2n$

15. $5x^2 - 2 = 318$

16. $7n^2 - 6 = -90$

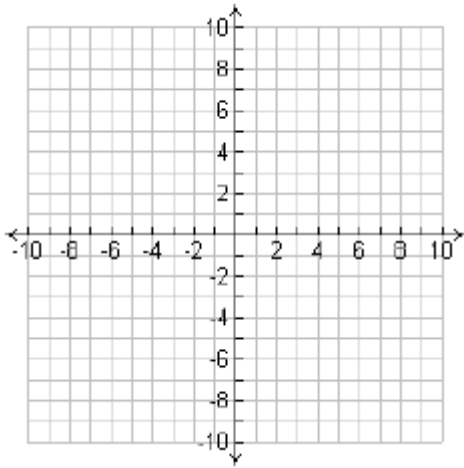
17. $11x^2 + 4x = -4$

18. $3n^2 = 12n + 36$

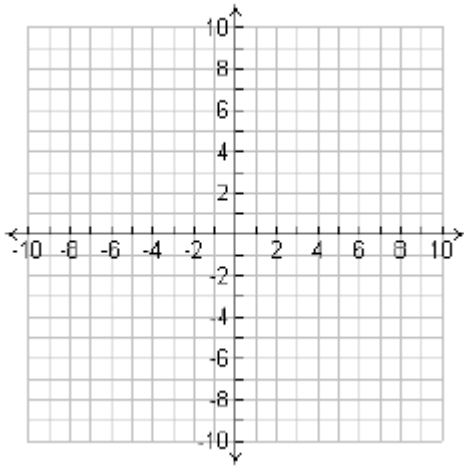
19. $4a^2 - 8a - 33 = -4$

20. $n^2 + 20n - 105 = -9$

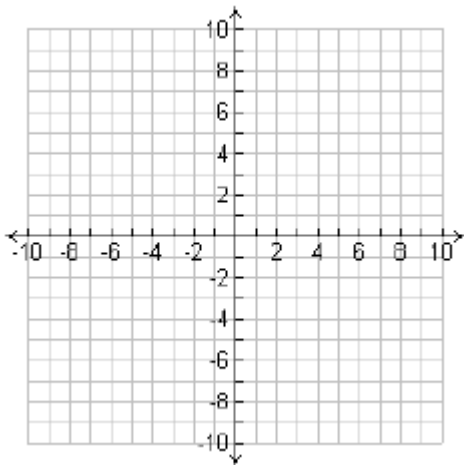
21. Graph $f(x) = (x + 2)^2 - 2$



23. Graph $f(x) = x^2 + 3x + 4$



25. Graph $f(x) = (x - 1)(x - 5)$



22. For #24, write the quadratic in the following forms:

Standard Form: _____

Factored Form: _____

24. For #26, write the quadratic in the following forms:

Vertex Form: _____

Factored Form: _____

26. For #28, write the quadratic in the following forms:

Standard Form: _____

Vertex Form: _____