Algebra 2 Name_____

# Practice for Semester 1 Exam - Quadratics & Functions Date_____ Period____

**Solve each equation.**

1) $x^2 + x = 6$

2) $-7x^2 = 504$

**Find the discriminant of each quadratic equation then state the number and type of solutions.**

3) $8n^2 + 8n + 6 = 4$

4) $-9k^2 - 6k - 19 = -10$

**Solve each equation.**

5) $6m^2 - 3m = 14$

6) $6n^2 = 2n + 7$

7) $5r^2 = -1 - 4r$

8) $2x^2 + 3 = -2x$

**Perform the indicated operation.**

9) $f(n) = 3n$
$g(n) = n^3 + 2$
Find $(f + g)(n)$

10) $g(t) = 4t - 1$
$h(t) = t^2 + 2t$
Find $(g - h)(t)$

**Find the inverse of each function.**

11) $f(x) = \frac{x - 5}{3}$

12) $f(x) = -4x + 4$

**Determine if the given functions are inverses, use the composition of the two functions.**

13) $g(x) = -x + 4$
$f(x) = -x + 4$

14) $g(x) = -\frac{5}{3}x + 5$
$f(x) = 4x - 5$

# Answers to Practice for Semester 1 Exam - Quadratics & Functions

1) $\{-3, 2\}$

2) $\{6i\sqrt{2}, -6i\sqrt{2}\}$

3) 0; one real solution

4) −288; two imaginary solutions

5) $\left\{\frac{3+\sqrt{345}}{12}, \frac{3-\sqrt{345}}{12}\right\}$

6) $\left\{\frac{1+\sqrt{43}}{6}, \frac{1-\sqrt{43}}{6}\right\}$

7) $\left\{\frac{-2+i}{5}, \frac{-2-i}{5}\right\}$

8) $\left\{\frac{-1+i\sqrt{5}}{2}, \frac{-1-i\sqrt{5}}{2}\right\}$

9) $n^3 + 3n + 2$

10) $-t^2 + 2t - 1$

11) $f^{-1}(x) = 3x + 5$

12) $f^{-1}(x) = -\frac{1}{4}x + 1$

13) Yes

14) No