Honors Math II	Name	
Unit 4 day 7	Period	Date
Solve the following equations by: a) factoring	b) completing the square	c) quadratic formula
1. $x^2 + 5x + 6 = 0$		

2. $2x^2 + x - 6 = 0$

3. $2x^2 - 4x = 16$

- 4. $y = -3(x+1)^2 + 10$
- a) Graph
- b) vertex: (,)
- c) axis of symmetry: x =
- d) x-intercept(s): (find exact value, check on calculator)



- e) y-intercept:
- f) domain:
- g) range:
- h) Intervals of increase and decrease:
- i) End behavior:
- 5. $y = -2(x-2)^2 + 1$
- a) Graph
- b) vertex: (,)
- c) axis of symmetry: x =
- d) x-intercept(s): (find exact value, check on calculator)



- e) y-intercept:
- f) domain:
- g) range:
- h) Intervals of increase and decrease:
- i) End behavior:

- 6. $y = -3x^2 12x 5$
- a) Graph
- b) vertex: (,)
- c) axis of symmetry: x =
- d) x-intercept(s): (find exact value, check on calculator)



- e) y-intercept:
- f) domain:
- g) range:
- h) Intervals of increase and decrease:
- i) End behavior:
- 7. The function $y = -\frac{1}{16}(x-8)^2 + 4$ models the jump of a kangaroo in feet.
- A) What is the kangaroo's maximum height?
- B) How long is the kangaroo's jump?

8. Some harbor police departments have fire-fighting boats with water cannons. The boats are used to fight fires that occur within the harbor.

The function y = -.0035(x - 0)(x - 143.9) models the path of the water shot by a water cannon in feet.

A) How far does a water cannon shoot?



B) What is the maximum height of the water?



9. The length of a rectangle is three more than twice the width. Determine the dimensions that will give a total area of $27m^2$.

10. We are going to fence in a rectangular field and we know that for some reason we want the field to have an enclosed area of 75 ft^2 . We also know that we want the length of the field to be 3 feet longer than the width of the field. What are the dimensions of the field?

11. A flare is launched from a boat. The height, *h*, in meters, of the flare above the water is approximately modeled by the function $h(t) = -15t^2 + 150t$, where *t* is the number of seconds after the flare is launched. How many seconds will it take for the flare to hit the water?

12. A jump in inches on a pogo stick with a bow spring can be modeled by the following equation: $y = -\frac{7}{6}(x-6)^2 + 42$ A) What is the maximum jump height in inches?

B) How far does the pogo stick go in the horizontal direction?

