**Day 03 HW: Quadratic Applications Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date\_\_\_\_\_\_\_\_\_\_\_Block\_\_\_\_**

Use the formula **h(t)= vot - 16t2**, where h(t) is the height of an object in feet,

vo is the object’s initial velocity in feet per second, and t is the time in seconds.

1. Maura throws a baseball with an initial upward velocity of 60 feet per second.
   1. Ignoring Maura’s height, how long after she releases the ball will it hit the ground?
   2. How high was the ball after 2 seconds?
2. David threw a baseball into the air with an initial velocity of 80 feet per second.
   1. What is the maximum height the ball will travel?
   2. When will the ball hit the ground?

**http://www.purplemath.com/modules/quadprob.htm**

1. An object is launched at 19.6 meters per second (m/s) from a 58.8-meter tall platform. The equation for the object's height *s* at time *t* seconds after launch is

*s*(*t*) = –4.9*t*2 + 19.6*t* + 58.8, where *s* is in meters.

* 1. When does the object strike the ground?
  2. How many seconds would it take for the object to be 10 meters above the ground?

1. An object in launched directly upward at 64 feet per second (ft/s) from a platform 80 feet high.
   1. What will be the object's maximum height?
   2. When will it attain this height?

**http://www.algebralab.org/Word/Word.aspx?file=Algebra\_QuadraticRegression.xml**

|  |  |
| --- | --- |
| **Year** | **AIDS Cases** |
| 1999 | 41,356 |
| 2000 | 41,267 |
| 2001 | 40,833 |
| 2002 | 41,289 |
| 2003 | 43,171 |

1. The given [table](javascript:def('/Glossary/glossaryterm.aspx?word=Table',%20500,%20500);) lists the total estimated numbers of AIDS cases, by year of diagnosis from 1999 to 2003 in the United States (*Source: US Dept. of Health and Human Services, Centers for Disease Control and Prevention, HIV/AIDS Surveillance, 2003.)* 
   1. Approximately how many AIDS cases would there be in 2006?
   2. In what year would the amount of AIDS cases be over 50,000?

|  |  |
| --- | --- |
| **Distance (m)** | [**Height**](javascript:def('/Glossary/glossaryterm.aspx?word=Height',%20500,%20500);) **(m)** |
| 7 | 8 |
| 20 | 15 |
| 33 | 24 |
| 47 | 26 |
| 60 | 24 |
| 67 | 21 |

1. On Tuesday, May 10, 2005, 17 year-old Adi Alifuddin Hussin won the boys’ shot-putt gold medal for the fourth consecutive year. His winning throw was 16**.**43 meters. A shot-putter throws a ball at an inclination of 45° to the horizontal. The following [data](javascript:def('/Glossary/glossaryterm.aspx?word=Data',%20500,%20500);) represent approximate heights for a ball thrown by a shot-putter as it travels a distance of x meters horizontally.
   1. What would be the height of the ball if it travels 80 meters?
   2. When would the ball hit the ground?

|  |  |
| --- | --- |
| **Time (Hours)** | [**Concentration**](javascript:def('/Glossary/glossaryterm.aspx?word=Concentration',%20500,%20500);) **(mg/l)** |
| 0 | 0 |
| 0.5 | 78.1 |
| 1 | 99.8 |
| 1.5 | 84.4 |
| 2 | 50.1 |
| 2.5 | 15.6 |

1. The [concentration](javascript:def('/Glossary/glossaryterm.aspx?word=Concentration',%20500,%20500);) (in milligrams per liter) of a medication in a patient’s blood as time passes is given by the [data](javascript:def('/Glossary/glossaryterm.aspx?word=Data',%20500,%20500);) in the following table:
   1. What is the [concentration](javascript:def('/Glossary/glossaryterm.aspx?word=Concentration',%20500,%20500);) of medicine in the blood after 4 hours have passed?
   2. When would the concentration of the medicine be at the maximum amount?