



DANGER DAN

Do you know anyone who is a daredevil?
Have you ever seen someone perform a daredevil stunt?

In this activity we will solve problems in various situations by using graphs and tables.

SITUATION 1. Danger Dan was shot out of a cannon. The equation $h(t) = -16t^2 + 80t + 14$ models his height, h , in feet above the ground after being in the air for t seconds.

1. Complete the table to the right using your calculator for help.
2. Using your table, answer the following.
 - a. How high in the air is Dan at $t = 2$ seconds?
 - b. At what time do you think Dan hits the ground?
 - c. When is Dan exactly 50 feet above the ground?
 - d. When is Dan more than 50 feet above the ground?
 - e. When is Dan less than 100 feet above the ground?
 - f. What is the value for $h(3.5)$? What does that mean?
 - g. When is $h(t) = 98$? What does that mean?

t	$h(t)$
0	
0.5	
1	
1.5	
2	
2.5	
3	
3.5	
4	
4.5	
5	
5.5	

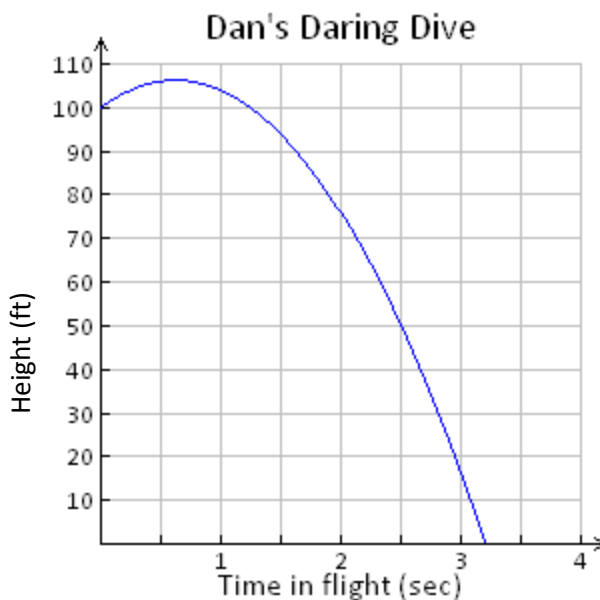
3. Using the graph to the right, answer the following.
 - a. How high in the air is Dan at $t = 3$ seconds?
 - b. At what time do you think Dan hits the ground?
 - c. When is Dan exactly 110 feet above the ground?
 - d. When is Dan more than 110 feet above the ground?
 - e. When is Dan less than 75 feet above the ground?
 - f. What is the value for $h(4)$? What does that mean?
 - g. When is $h(t) = 80$? What does that mean?



SITUATION 2. Danger Dan dove off a super high dive. The equation $h(t) = -16t^2 + 20t + 100$ models his height, h , in feet above the water after being in the air for t seconds.



t	$h(t)$
0	100
0.25	104
0.5	106
0.75	106
1	104
1.25	100
1.5	94
1.75	86
2	76
2.25	64
2.5	50
2.75	34
3	16
3.25	-4



1. Using the table or the graph above, answer the following.
 - a. When was Dan 100 feet above the water?
 - b. When was Dan more than 100 feet above the water?
 - c. When was Dan at least 80 feet above the water?
 - d. How long until Dan hit the water?
 - e. What is the value for $h(2)$? What does that mean?
 - f. When is $h(t) = 80$? What does that mean?

2. Explain how someone could use the table to determine when Dan was 50 feet above the water.

3. Explain how someone could use the graph to determine when Dan was 50 feet above the water.

4. Which do you like better to use in determining when Dan was 50 feet above the water? Why?