

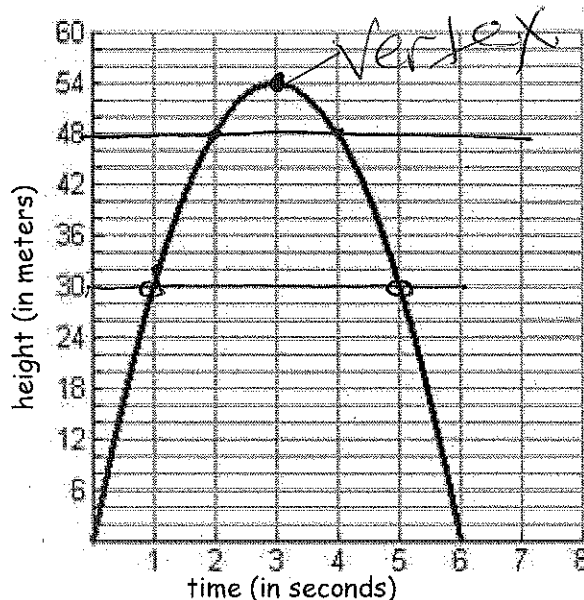
Introduction to Quadratic Relationships

PreAP Homework

Name KEY
 Date _____ Period _____

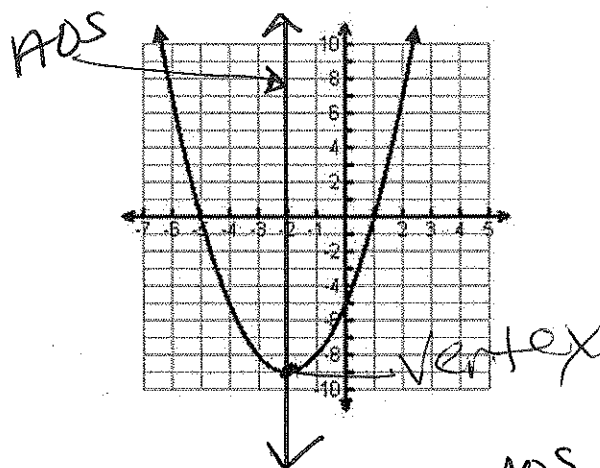
Superman kicks a ball into the air. The path can be found using the function $d(t) = 36t - 6t^2$, where d is the distance above the ground in meters and t , is the time in seconds. The following is a graph of the path of the ball.

- How high is the ball after 1 second?
30 meters
- When is the ball 48 m above the ground?
2 & 4 seconds
or 2-4 seconds
- What is the maximum height of the ball?
54 meters
- When is the ball 30 m above the ground?
1 & 5 seconds
or 1-5 seconds
- When will the ball hit the ground?
After 6 seconds



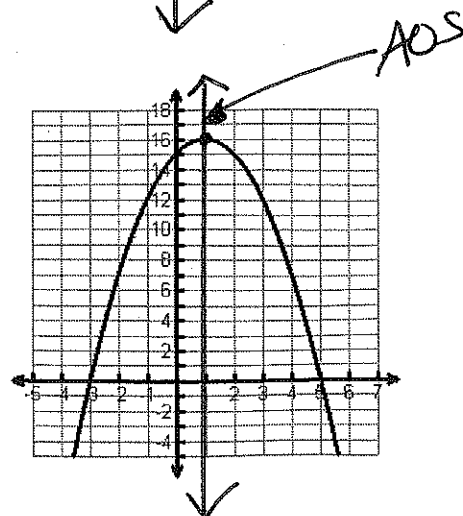
Use the graph to complete the following.

- Draw the axis of symmetry on the graph.
- Write the vertex as an ordered pair. (-2, -9)
- Is the vertex a maximum or a minimum point?
minimum point
- Does the parabola open up or down?
Opens Up



Use the graph to complete the following.

- Draw the axis of symmetry on the graph.
- Write the vertex as an ordered pair. (1, 16)
- Is the vertex a maximum or a minimum point?
maximum point
- Does the parabola open up or down?
Opens Down



Quadratic Relationships QR1

For a TV commercial a piece of luggage is dropped from the top of a building 256 feet above ground to show the durability of the luggage. The height (h) of the luggage after falling t seconds is given by $h = -16t^2 + 256$.

14. When does the maximum height occur?

At 0 seconds

15. What is the maximum height of the luggage?

256 ft.

16. When does the luggage hit the ground?

After 4 seconds

17. Why does this graph only show half of the parabola?

Because it starts at the maximum point

18. Does this parabola open up or down?

Opens down

19. Draw the axis of symmetry on the graph and describe its location.

The AOS is the y-axis.

20. Is this a discrete or continuous situation? Explain.

Continuous, both Time & Height in feet can be broken down into smaller units

21. What is a reasonable domain and range for the situation?

Domain: $0 \leq x \leq 4$

Range: $0 \leq y \leq 256$

