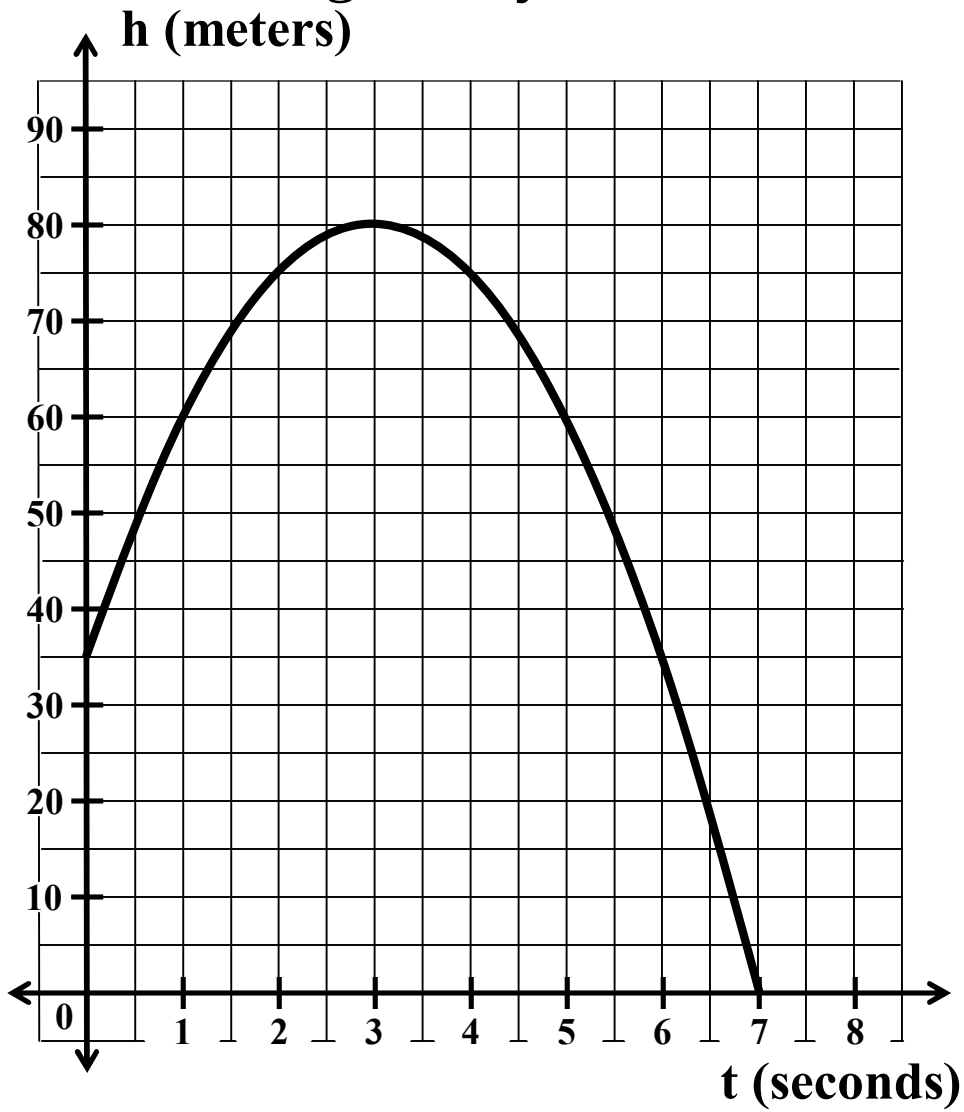
Calculus Unit 1
Lesson #5a
The Velocity Function
Class Worksheet 5a

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function **$h = f(t) = -5t^2 + 30t + 35$**.



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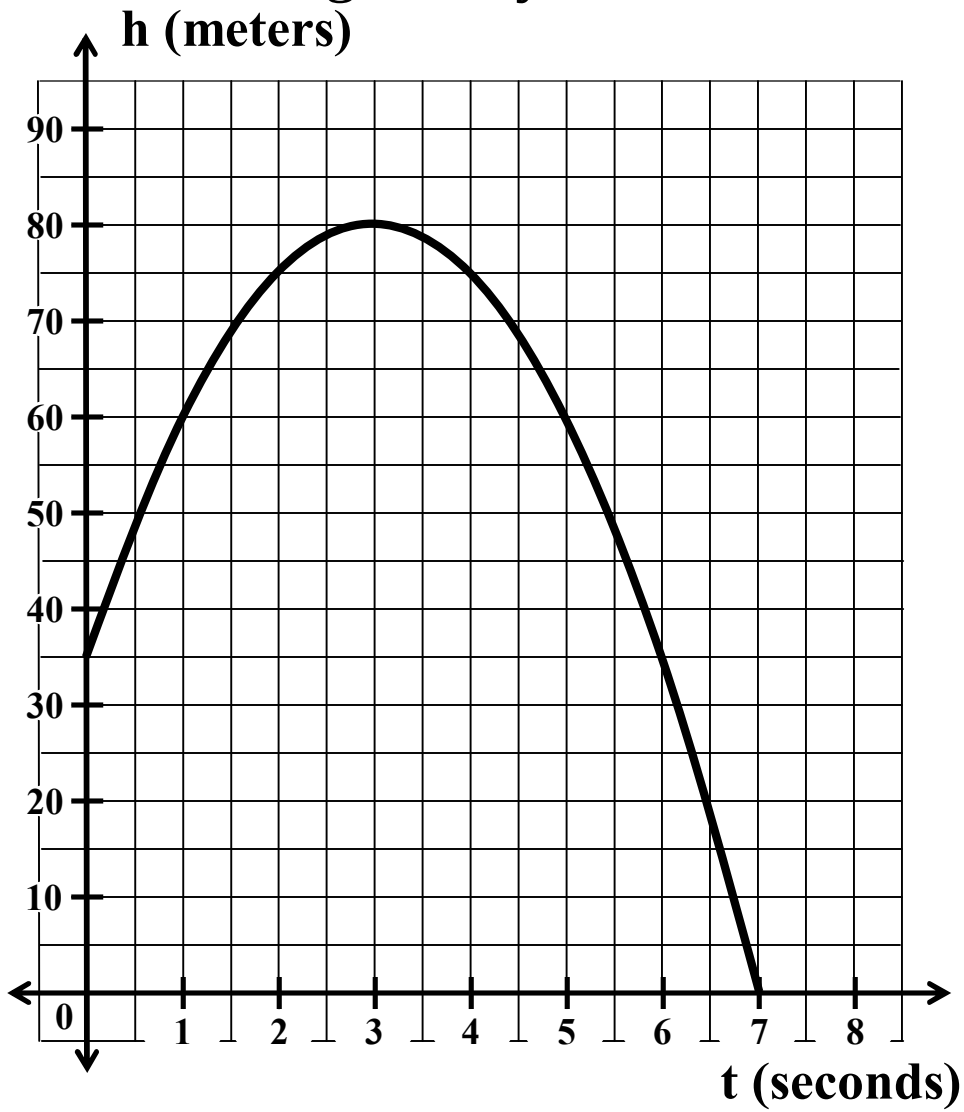

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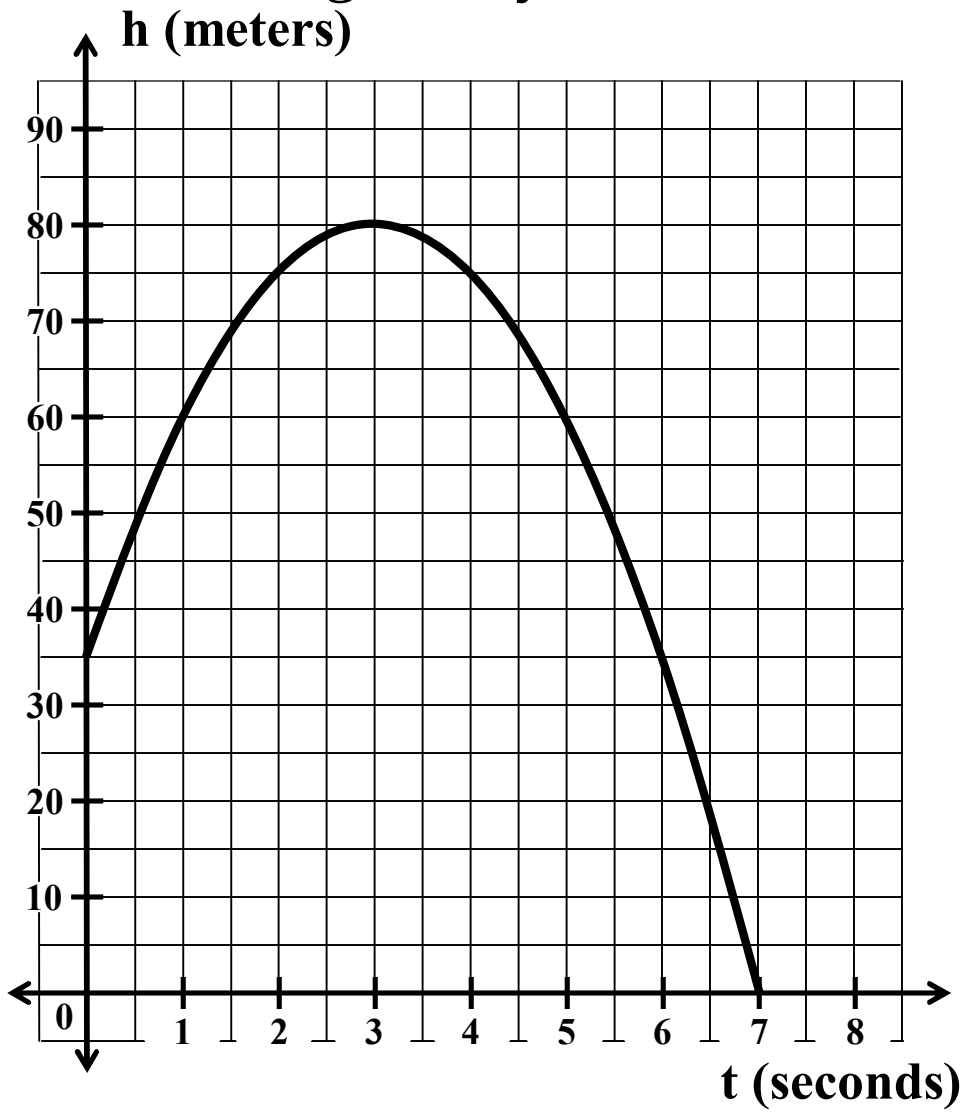

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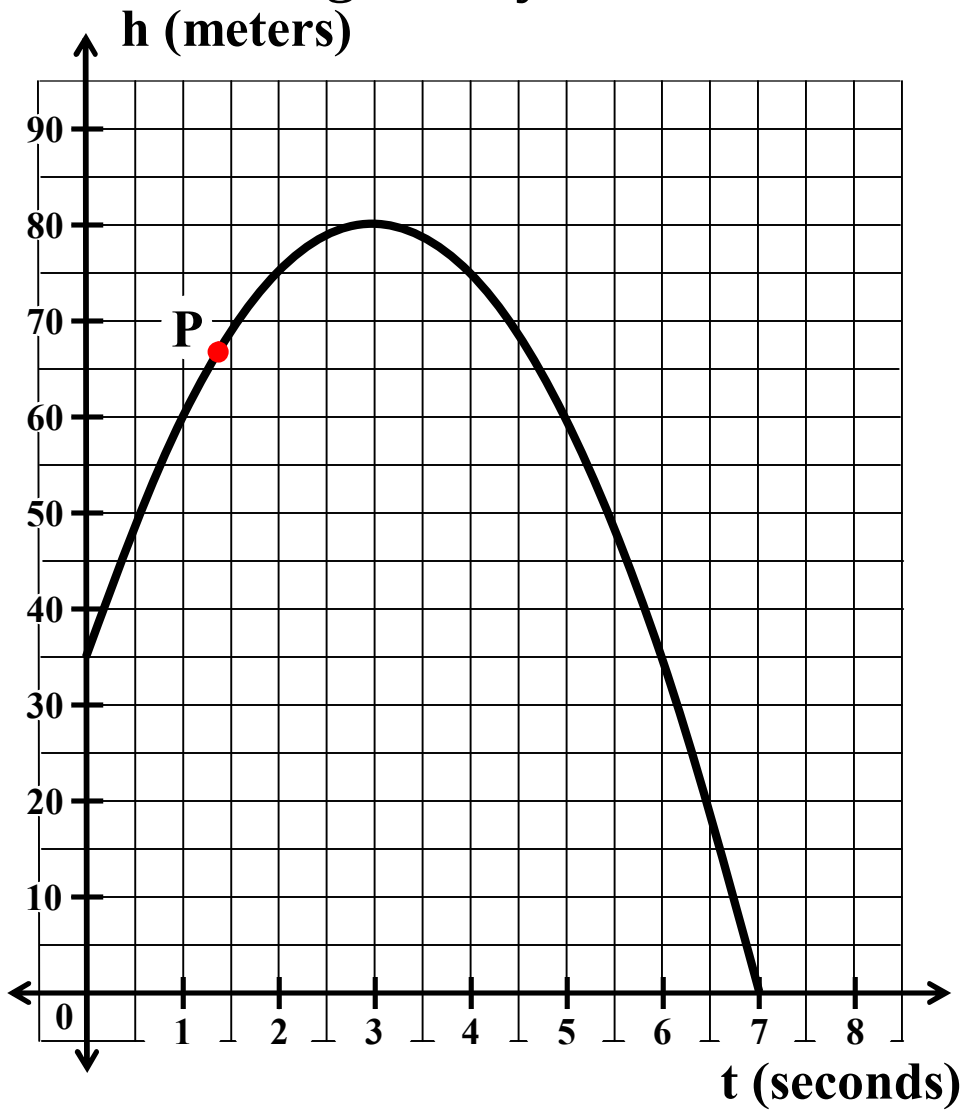

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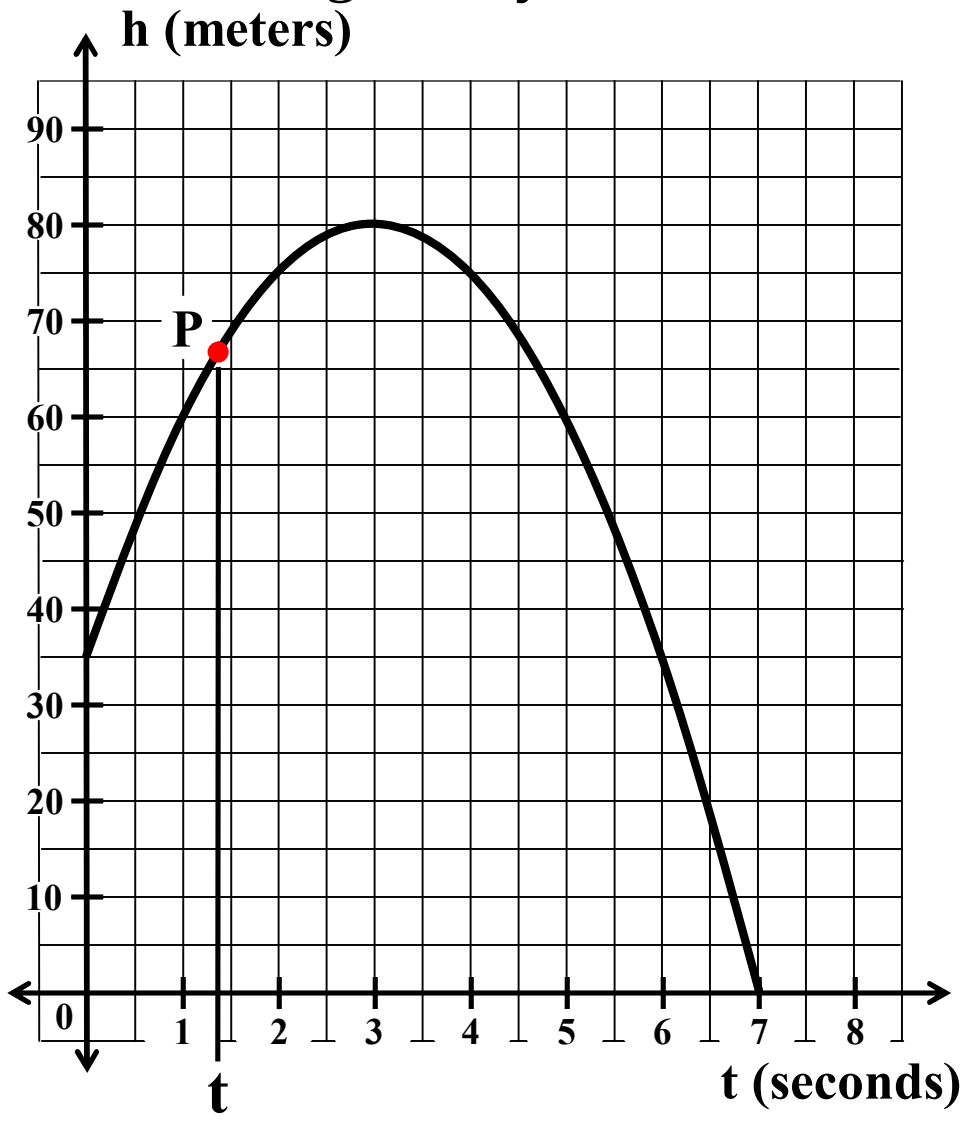

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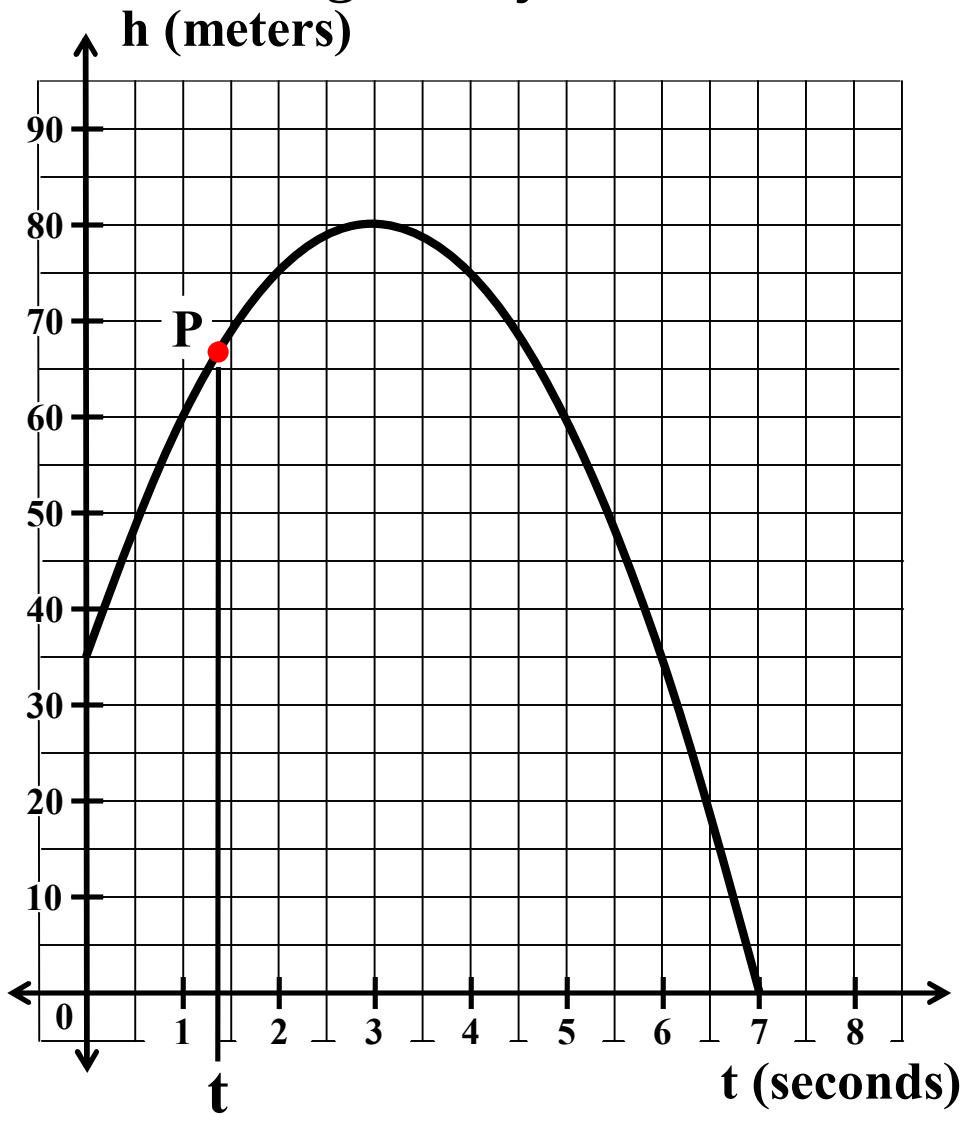

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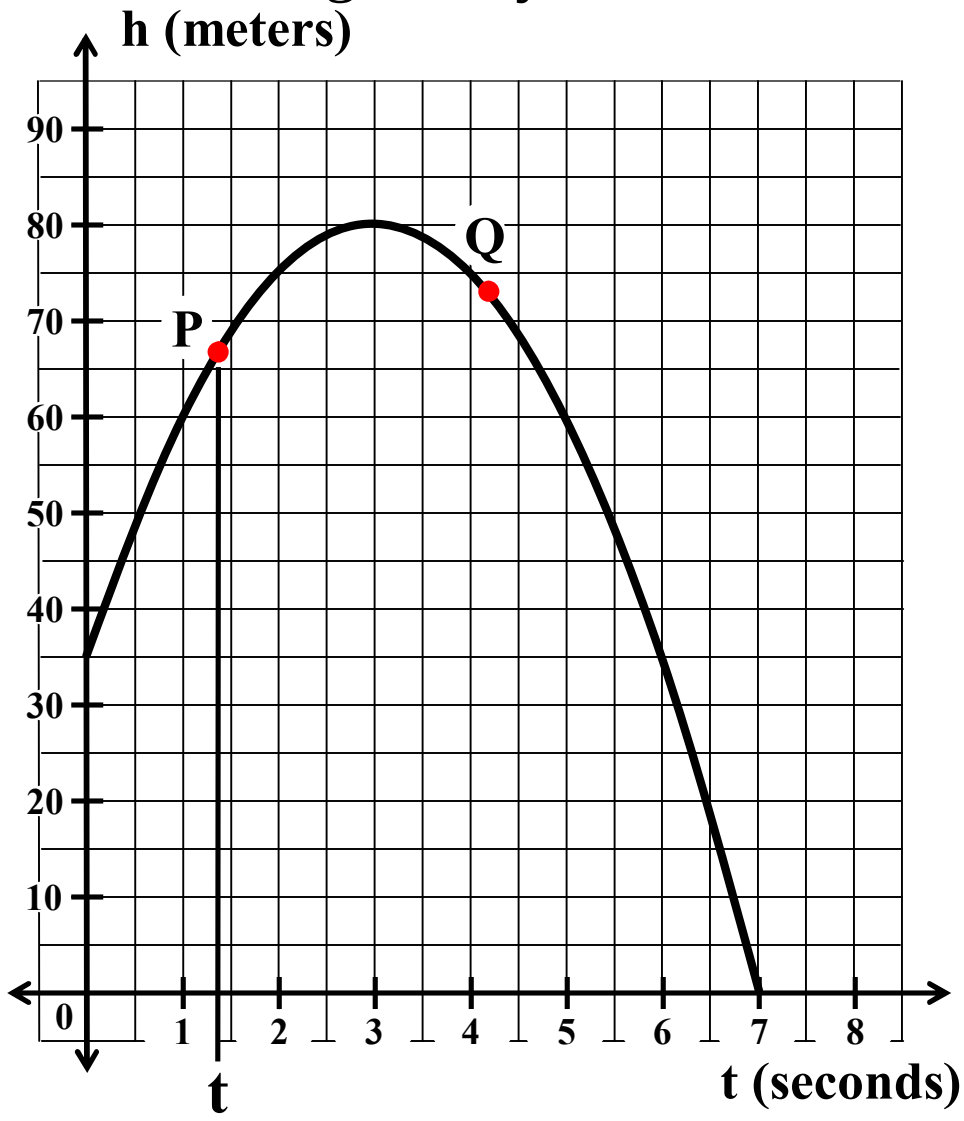

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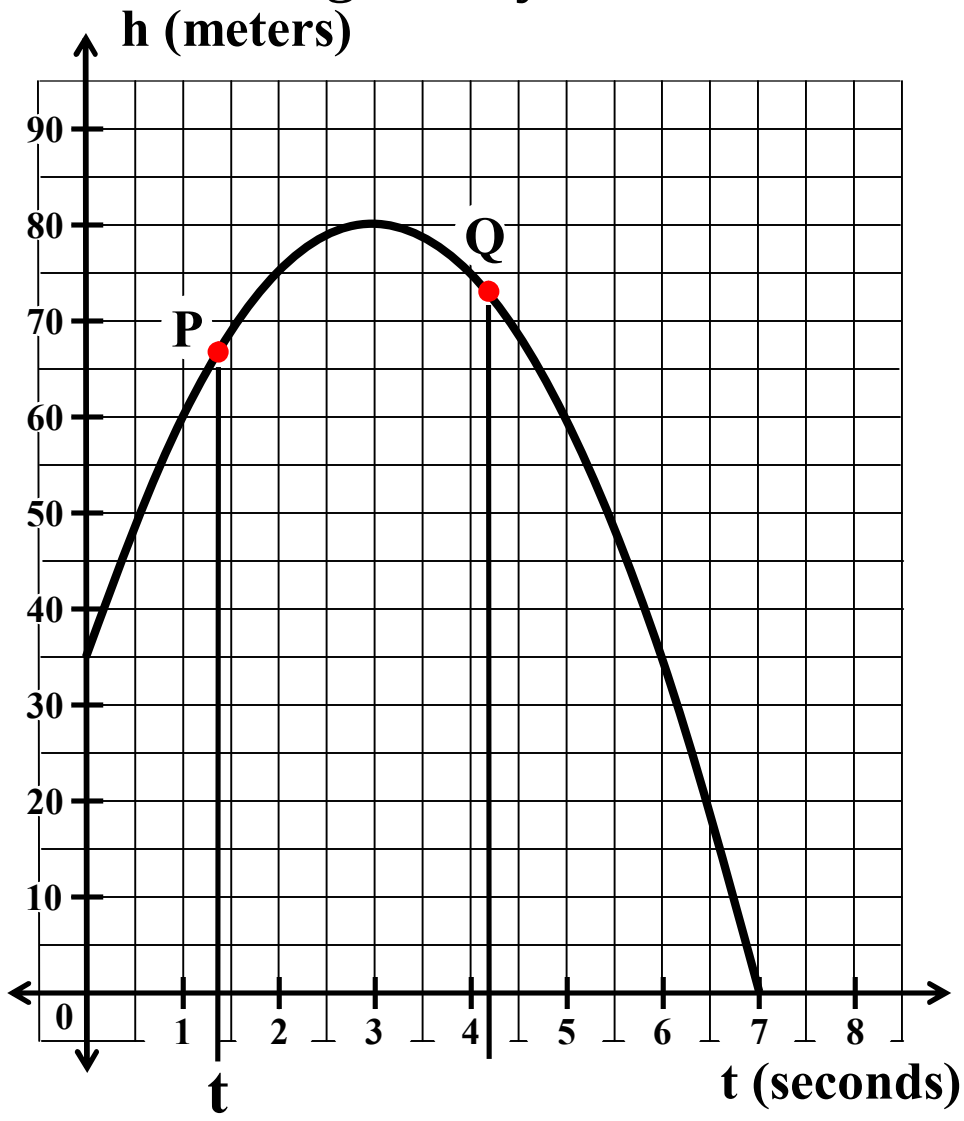

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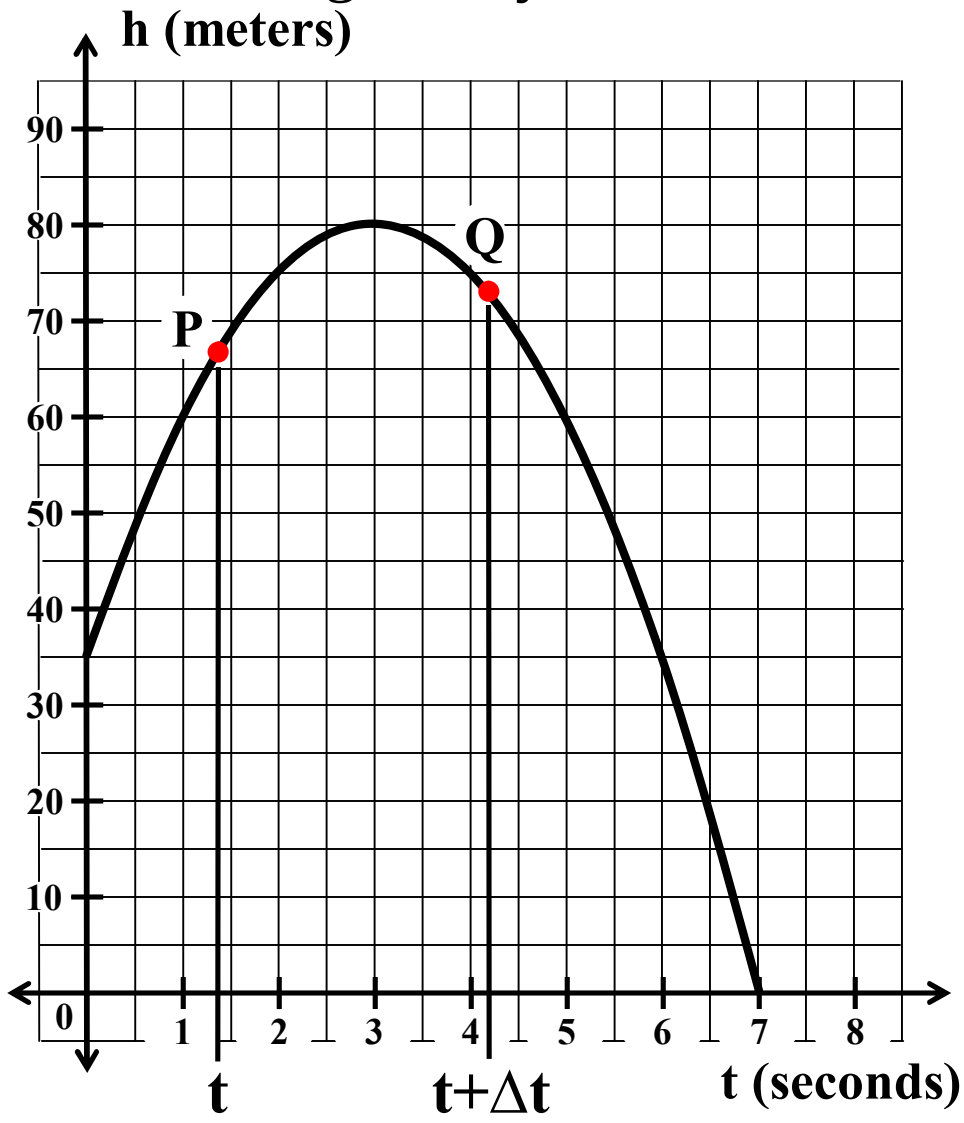

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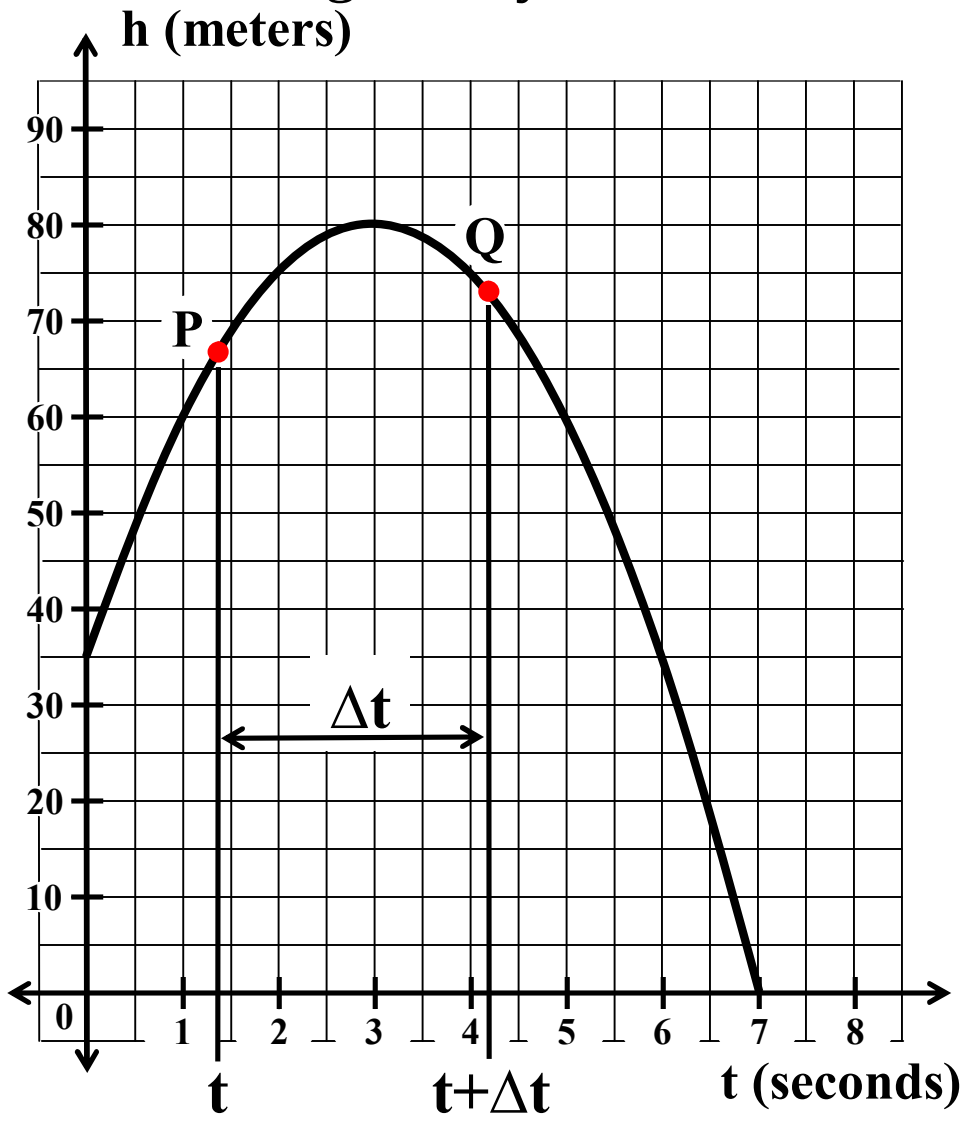

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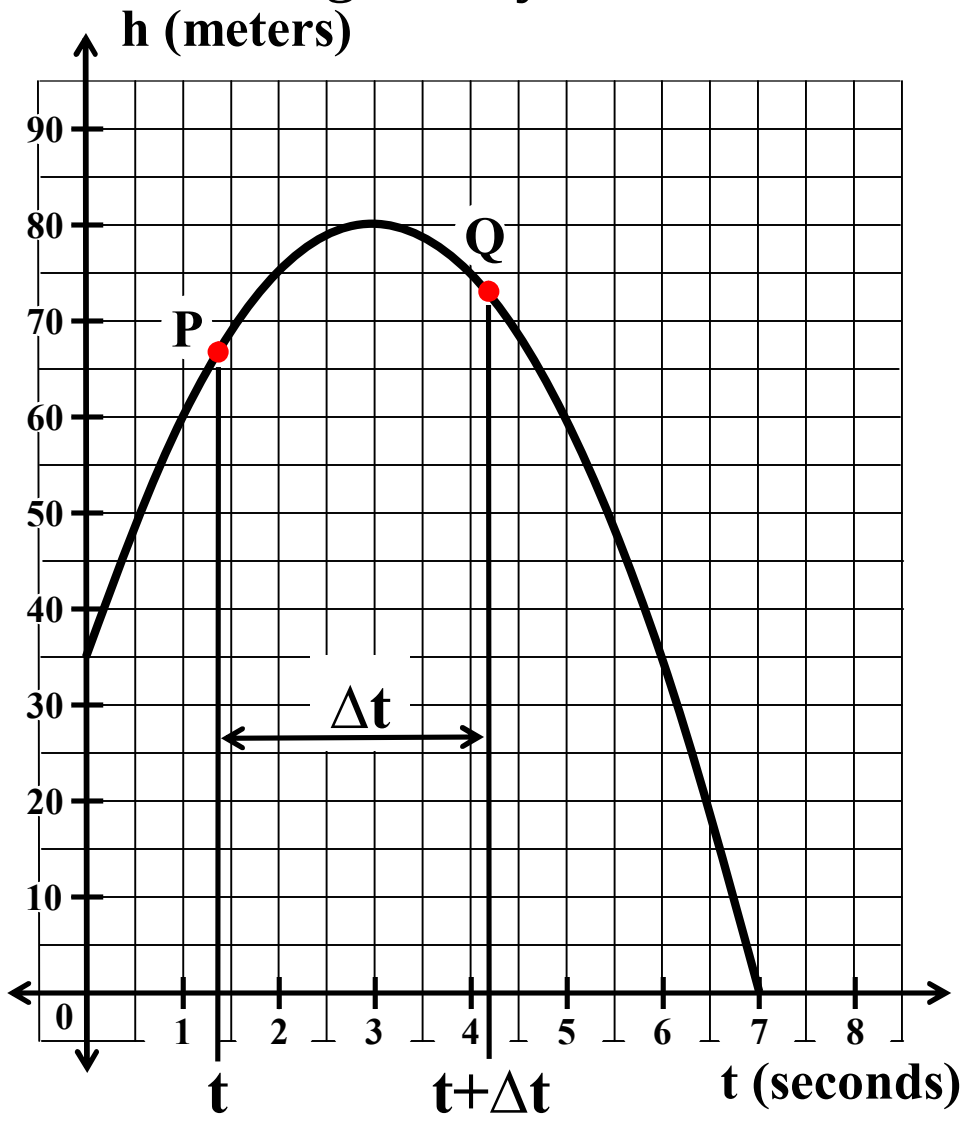
Note that if Δt < 0, then point Q would be to the left of point P on the graph.



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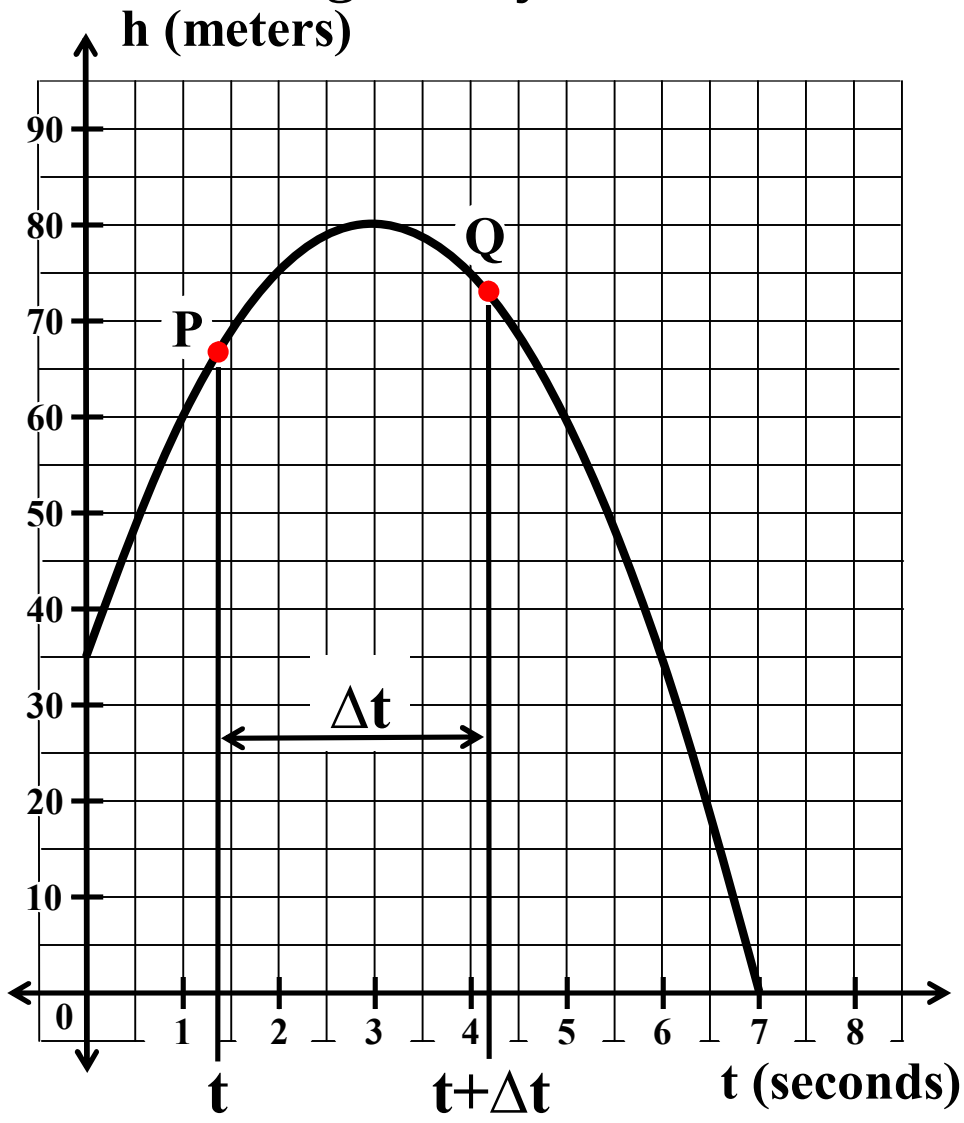

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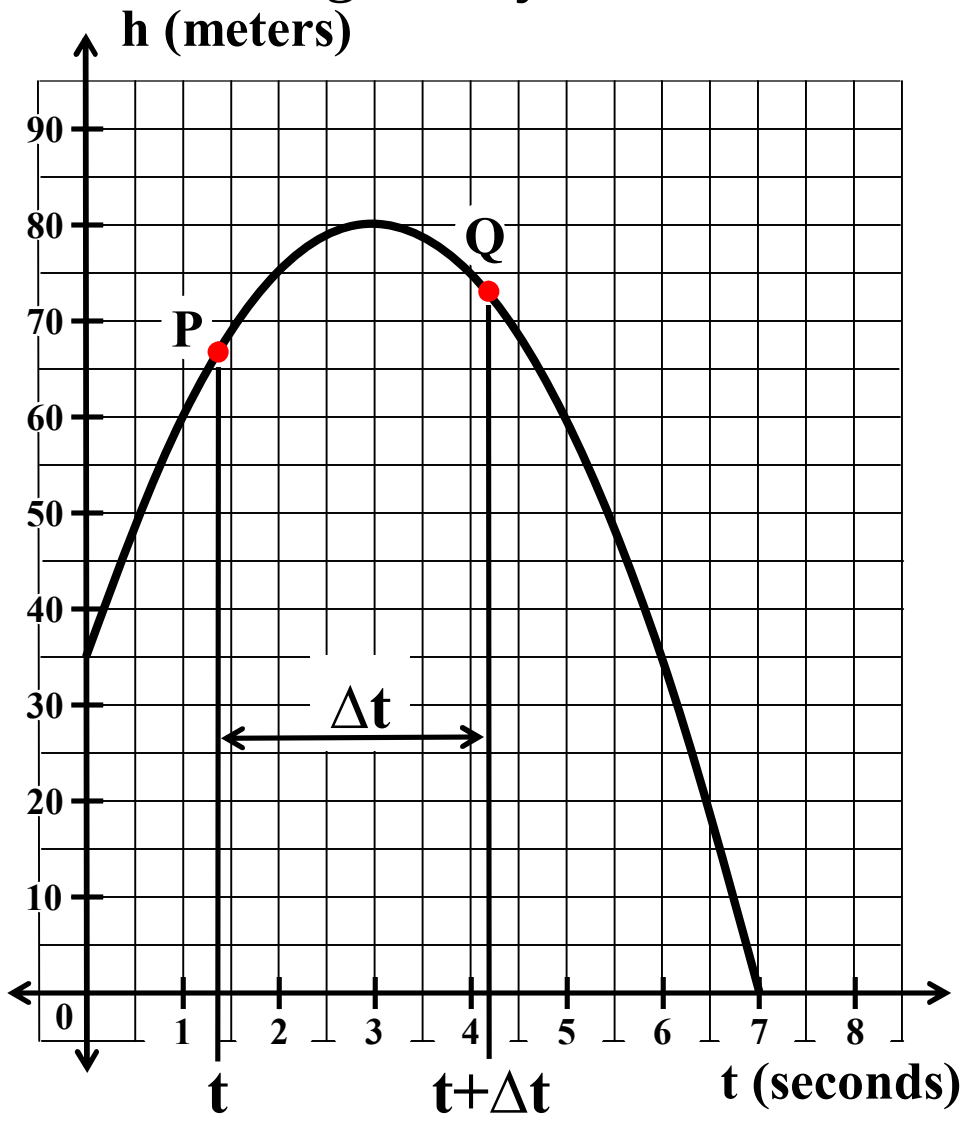

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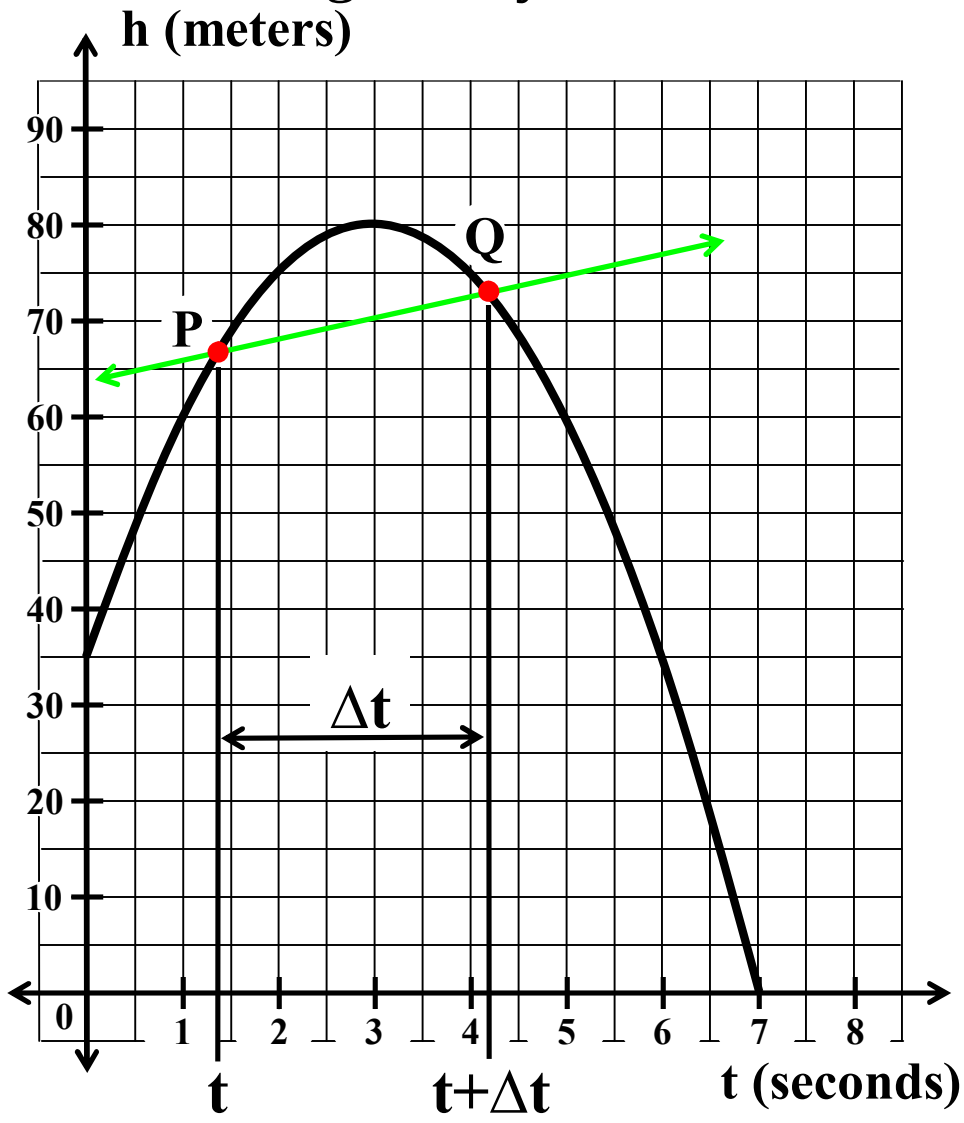

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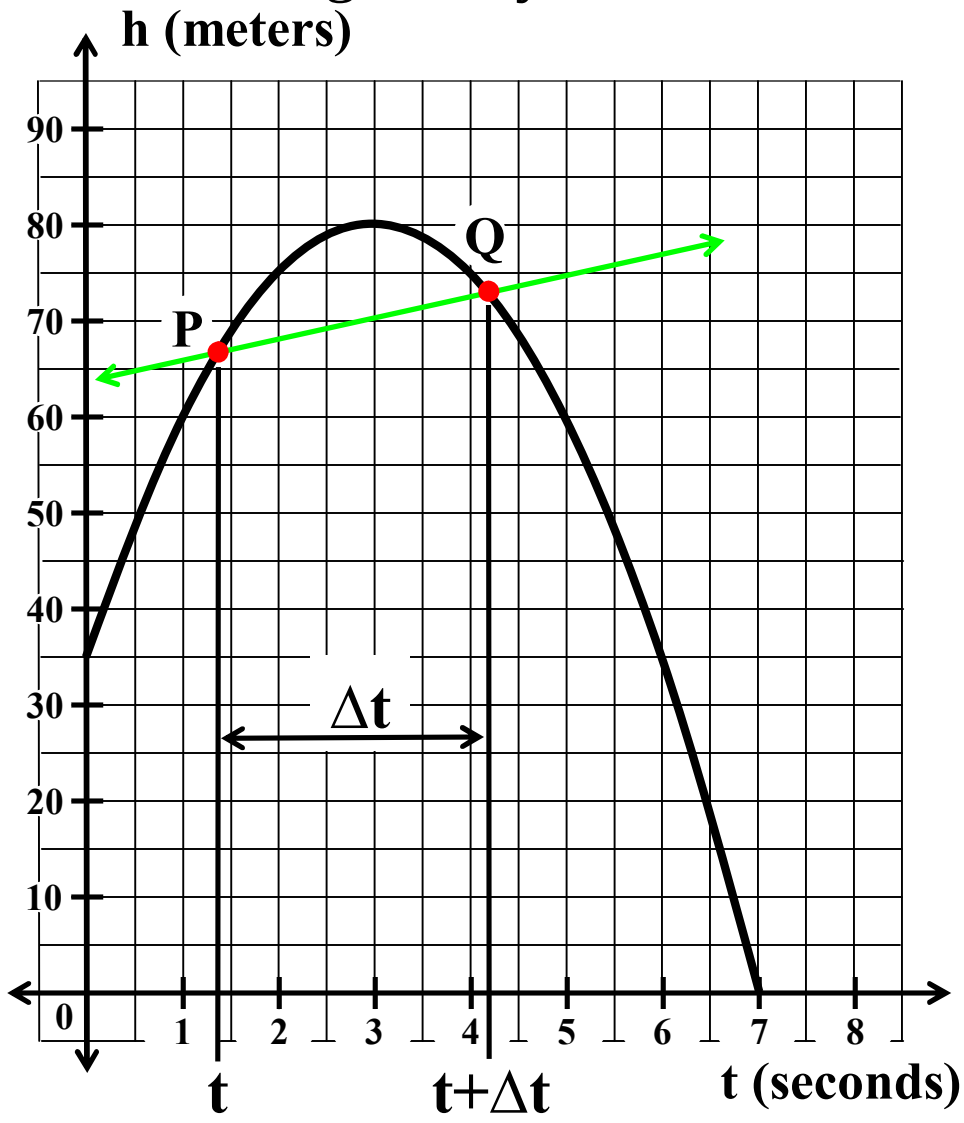

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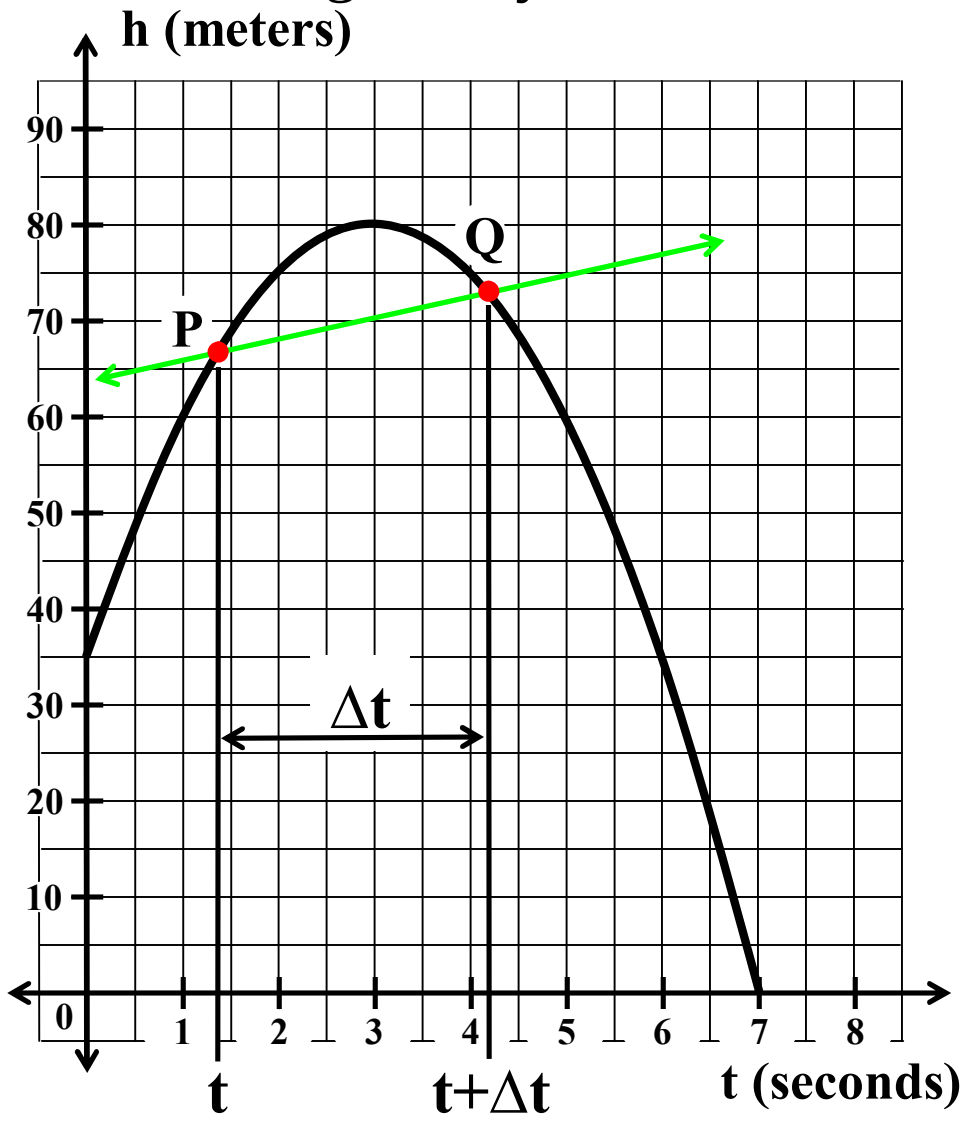

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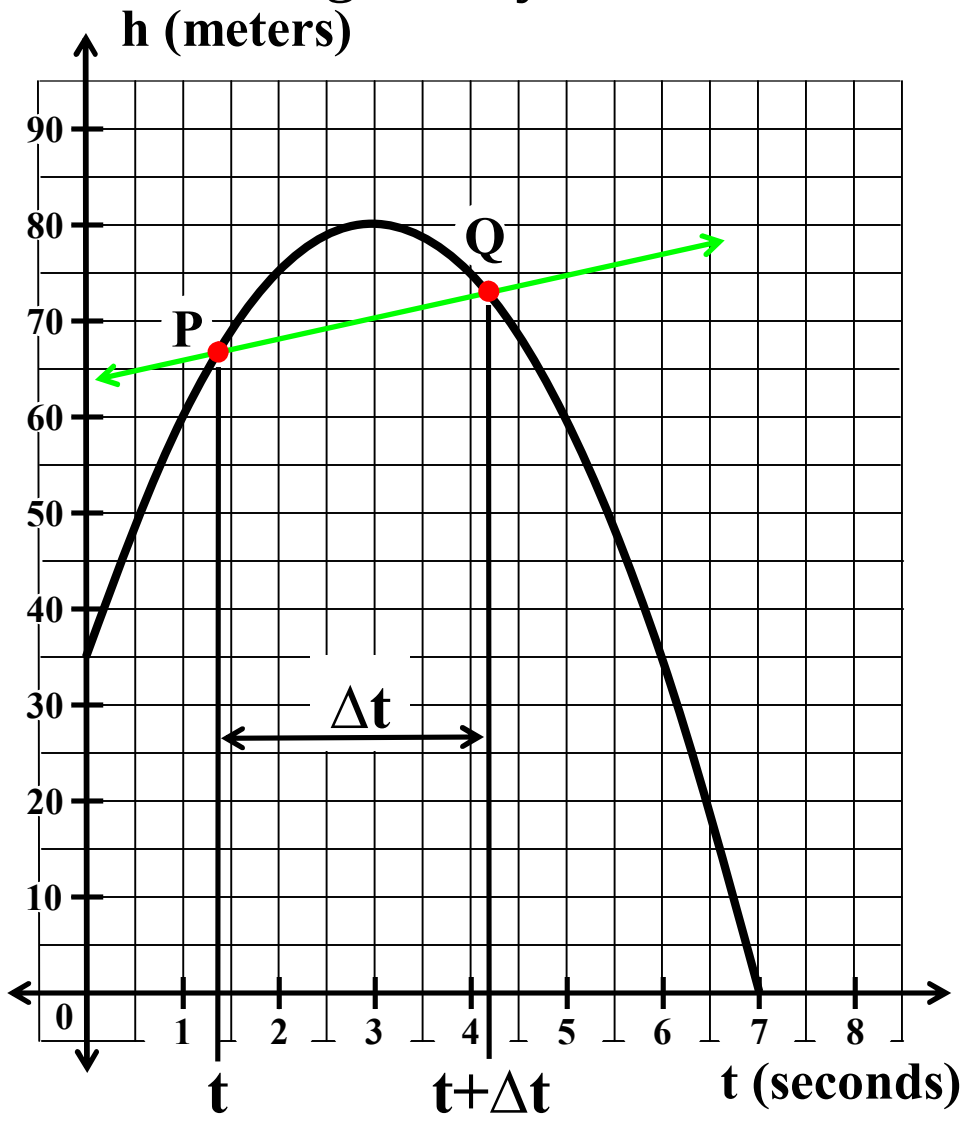

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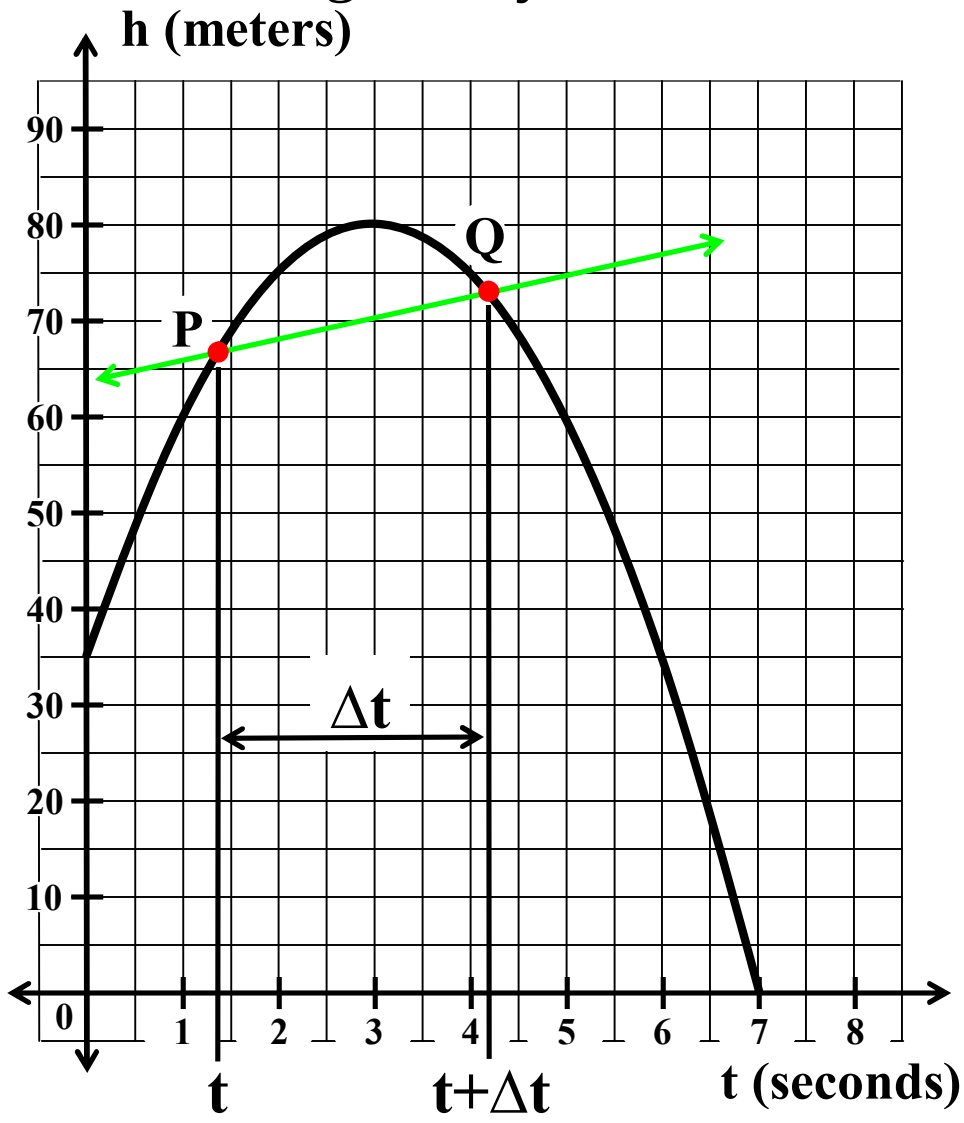

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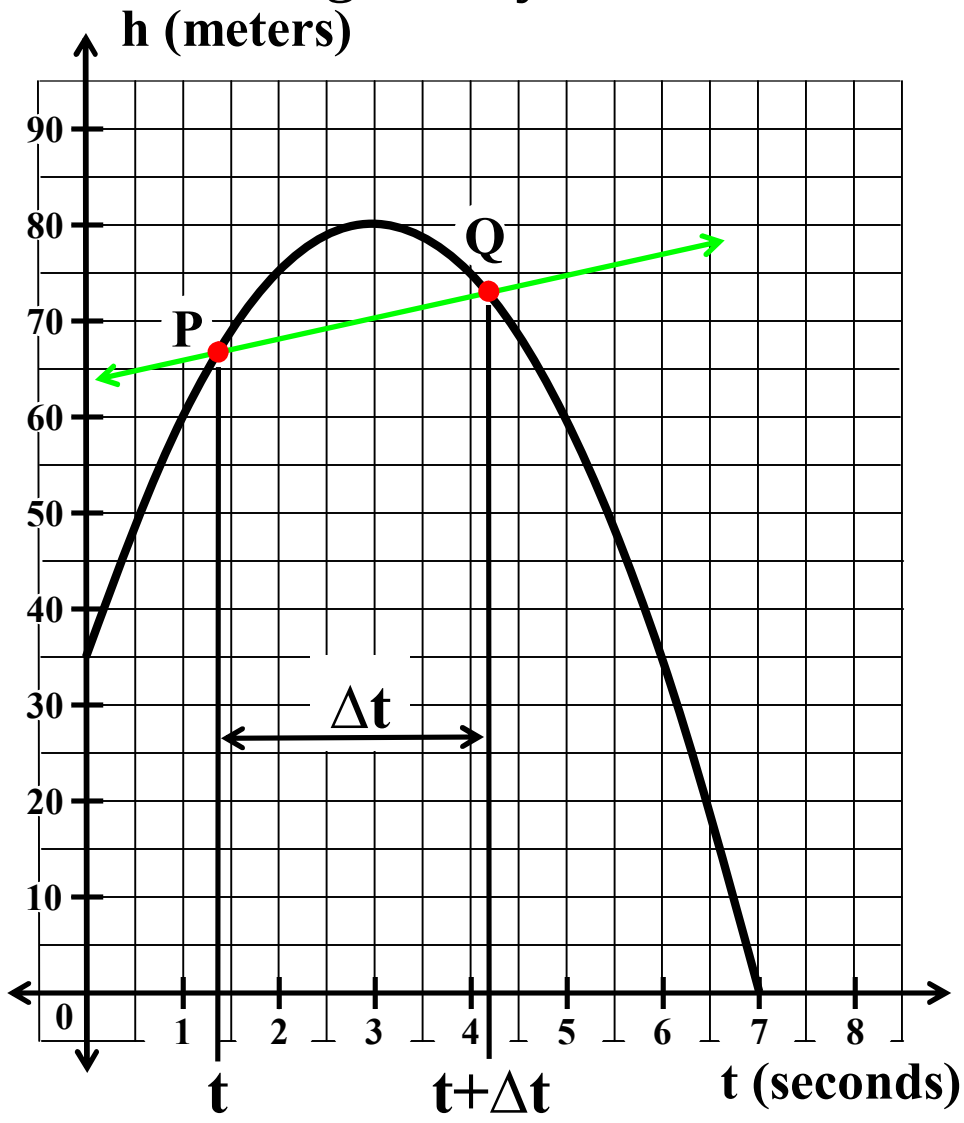

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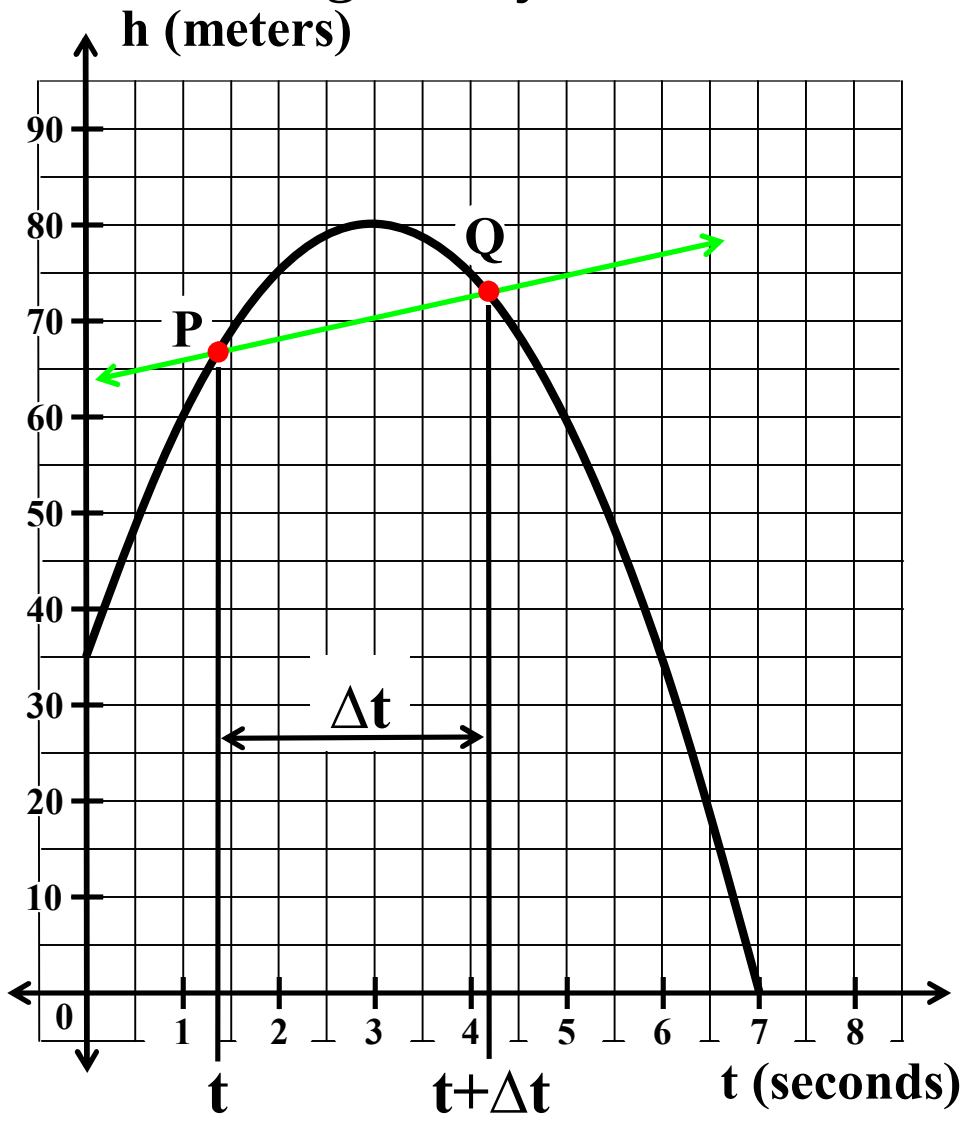

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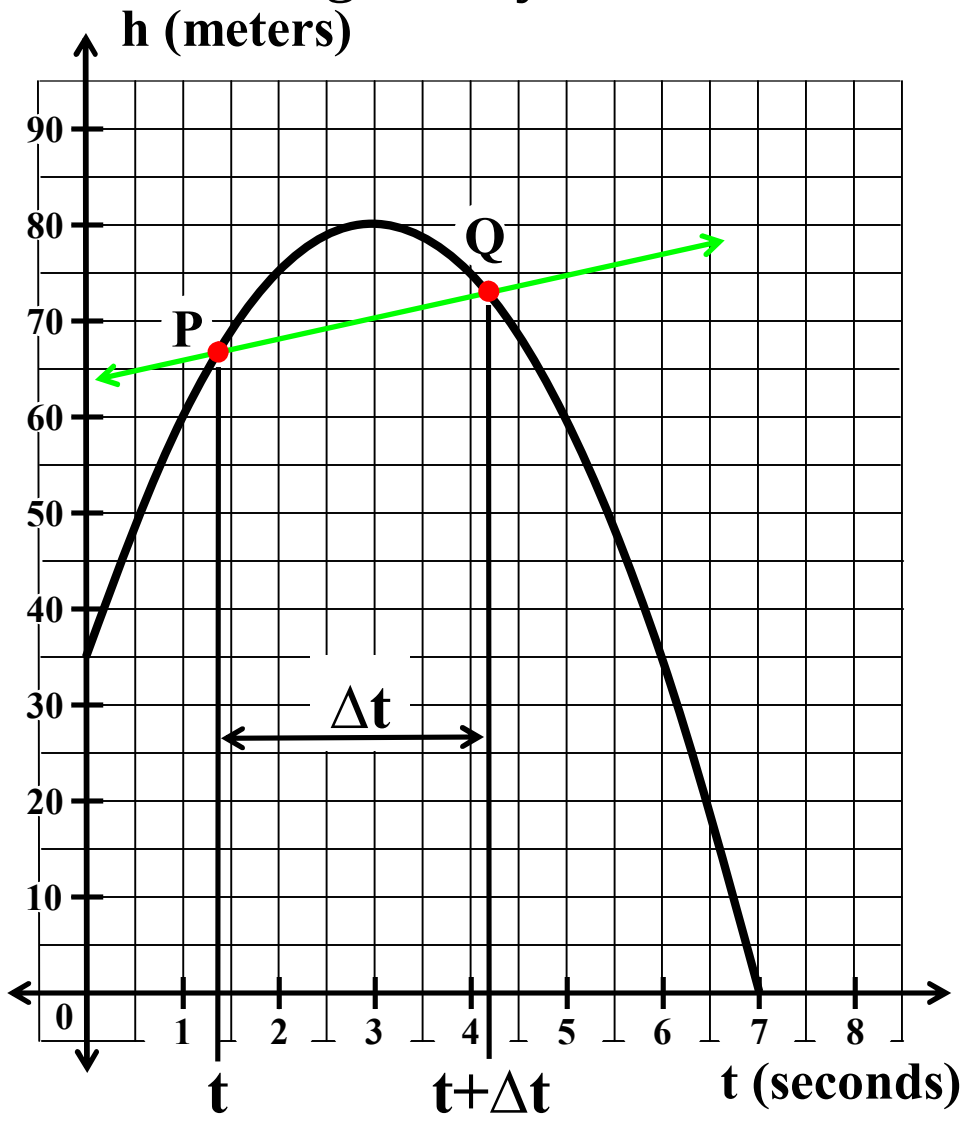

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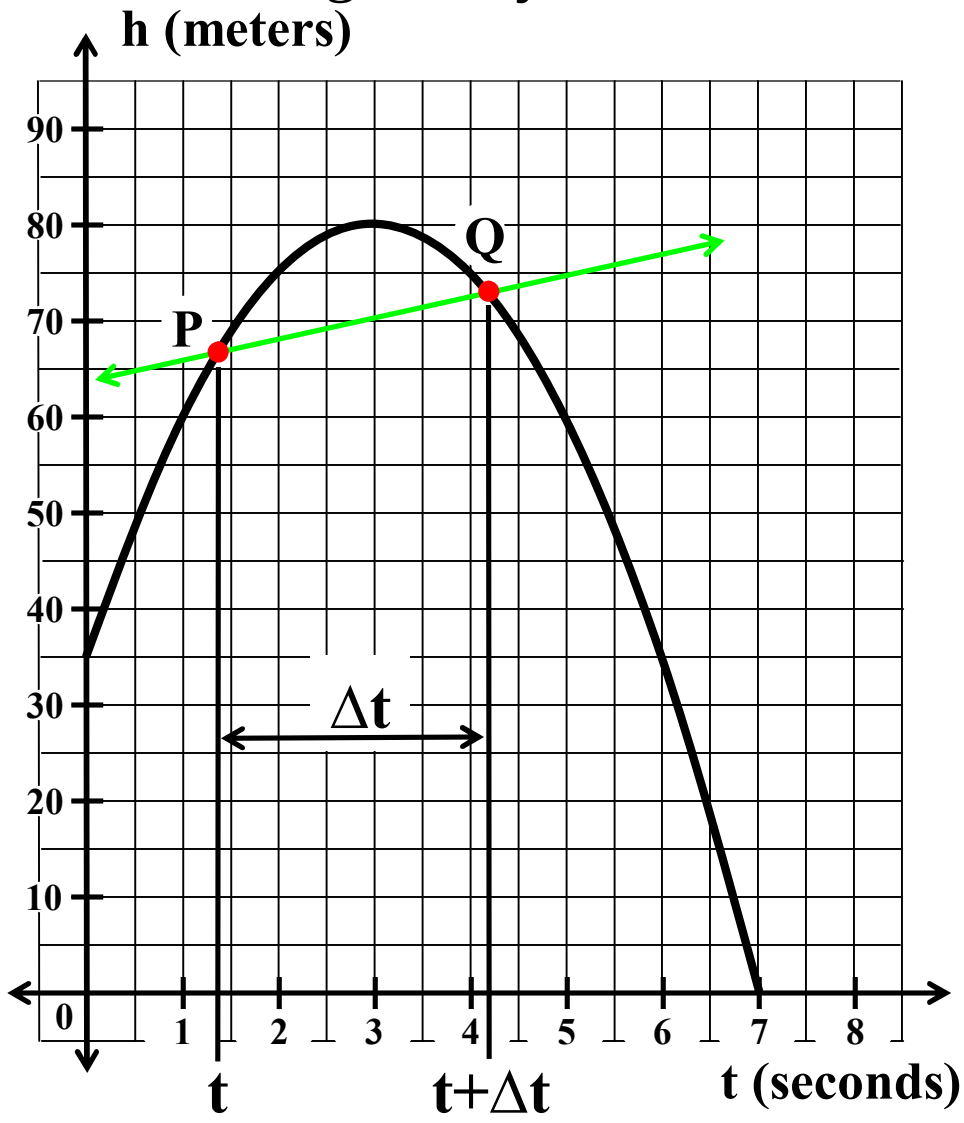

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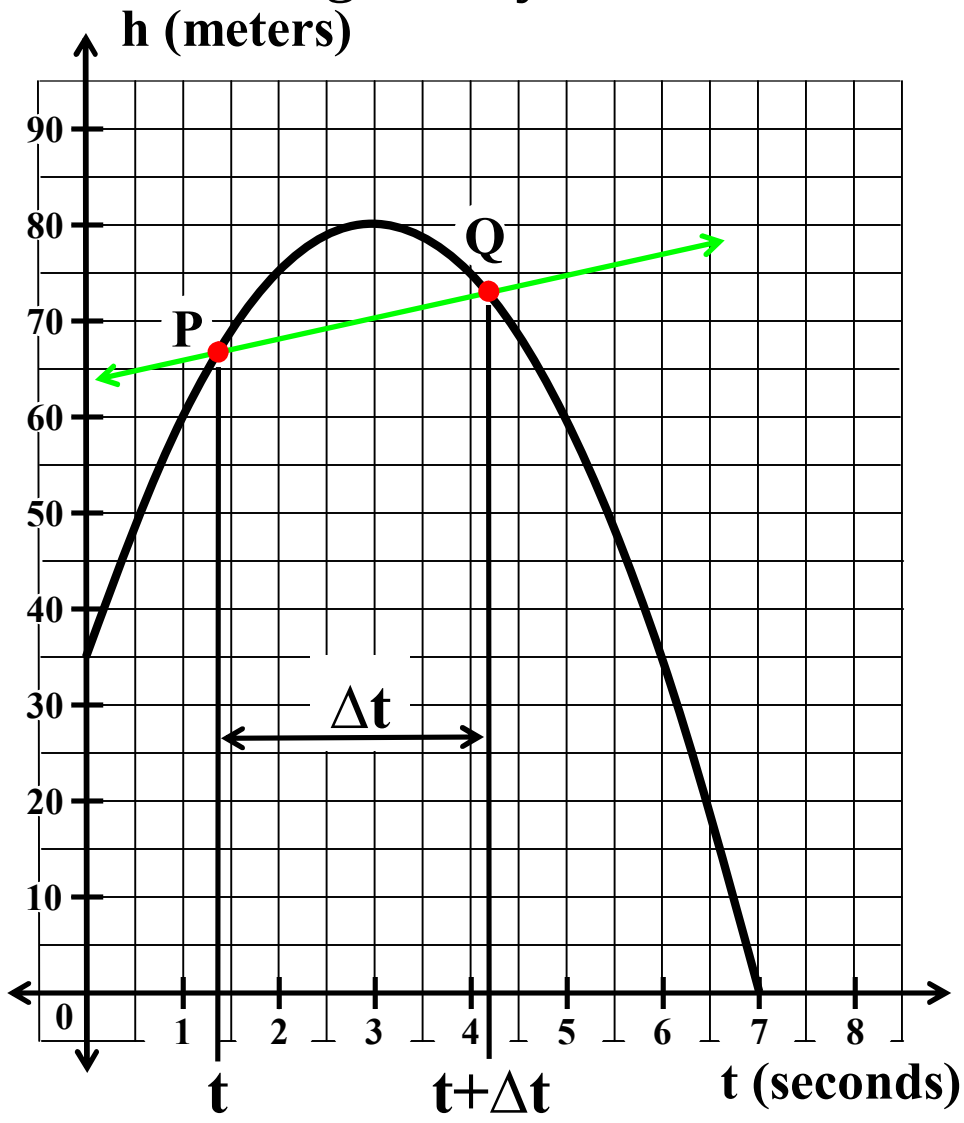

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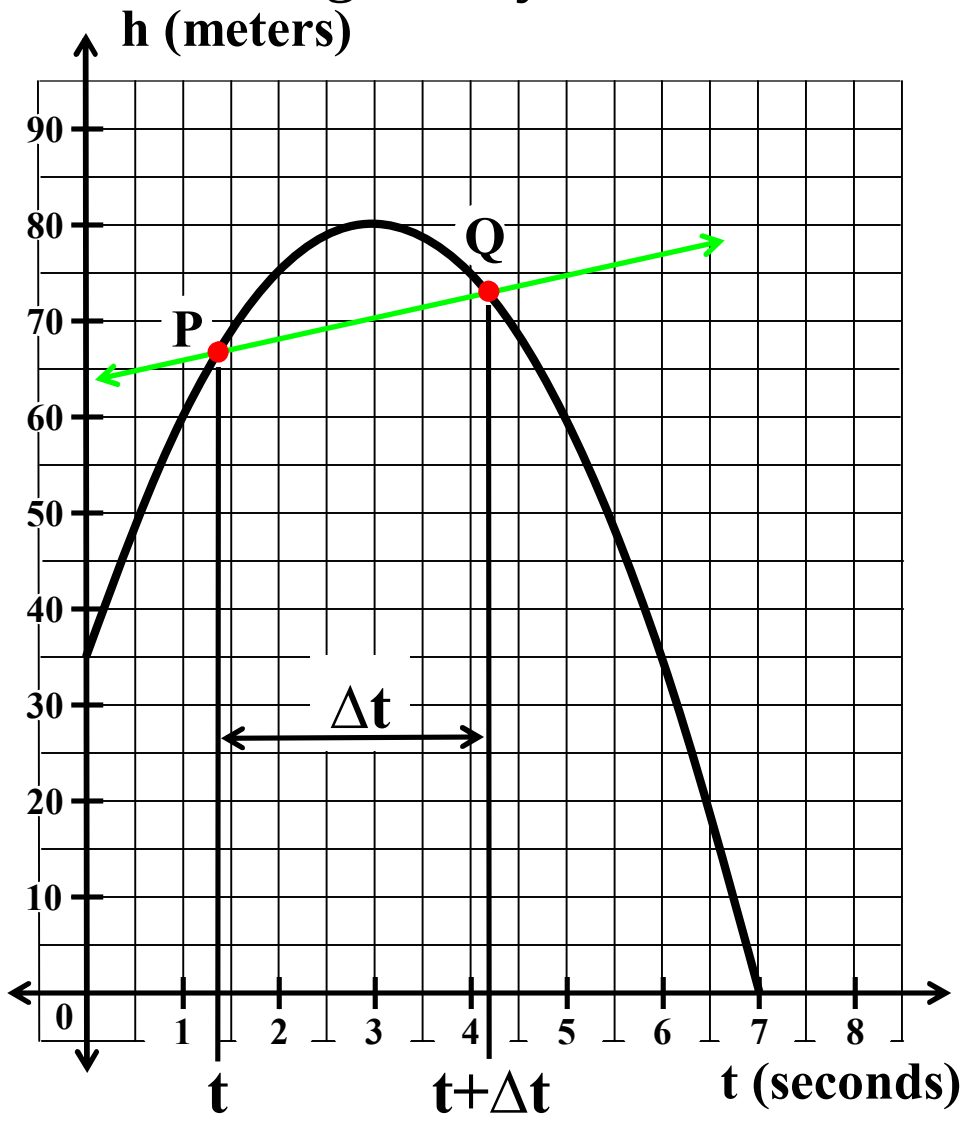

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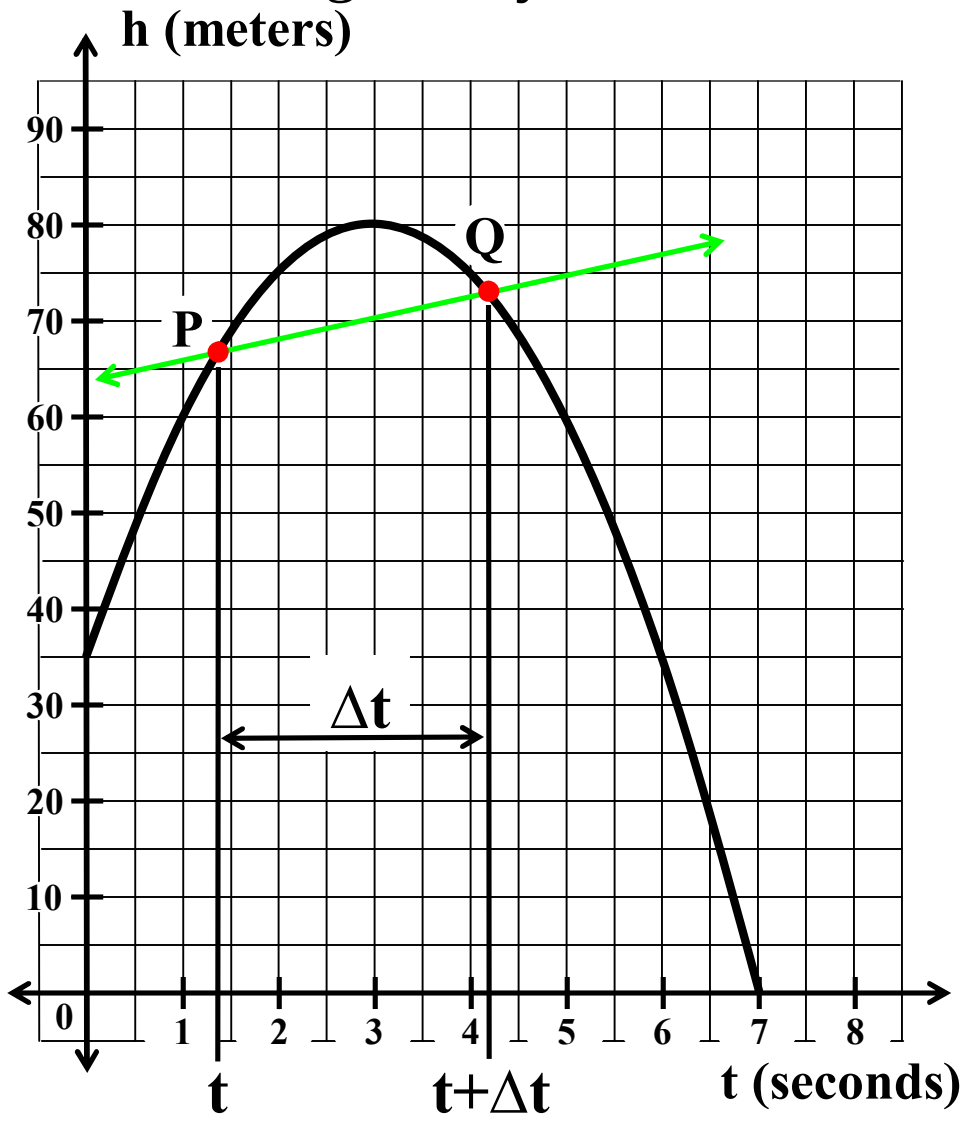
$$\text{Slope} = \frac{f(t + \Delta t) - f(t)}{(t + \Delta t) - t} = \frac{f(t + \Delta t) - f(t)}{\Delta t}$$

This represents the <u>average velocity</u> of the ball over this time interval.



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$$\mathbf{V_{avg} = \frac{f(t + \Delta t) - f(t)}{\Delta t}}$$

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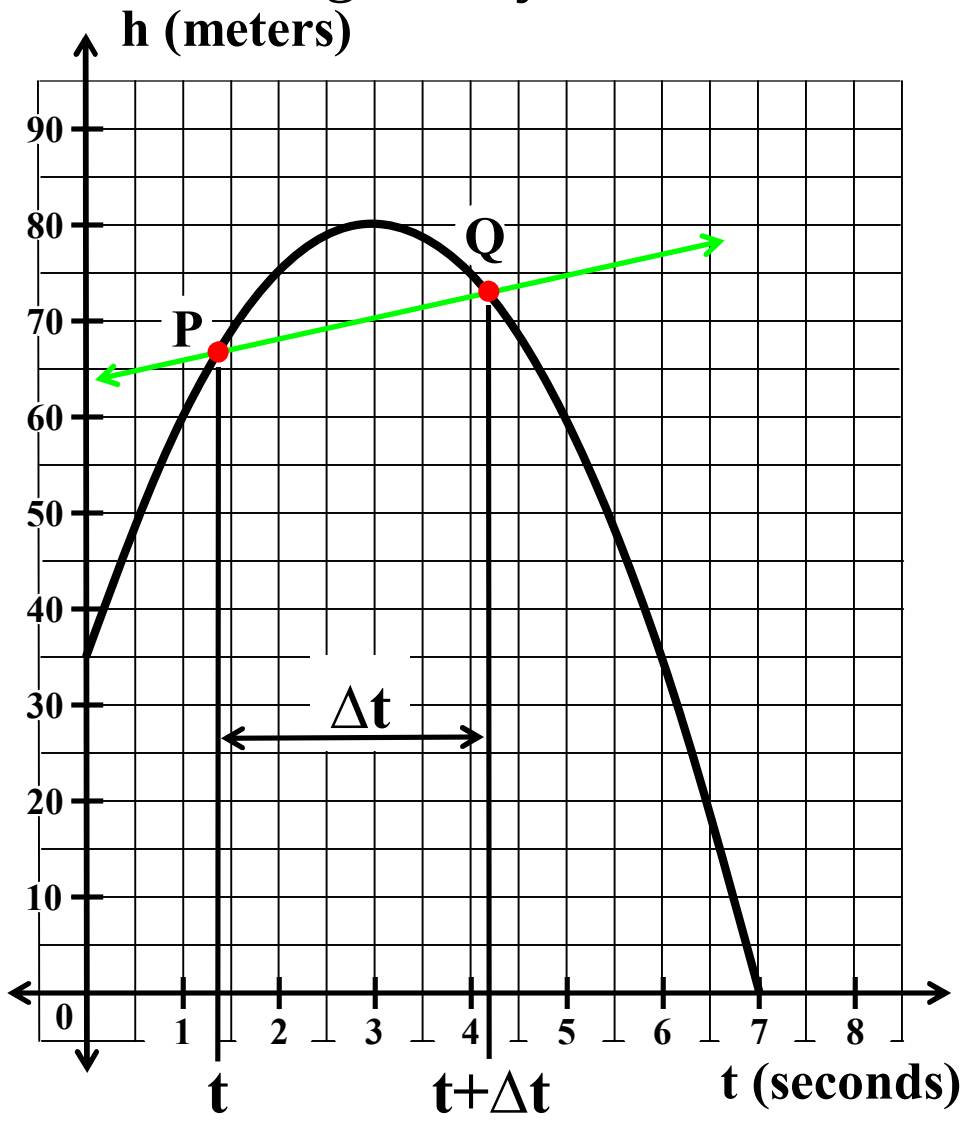

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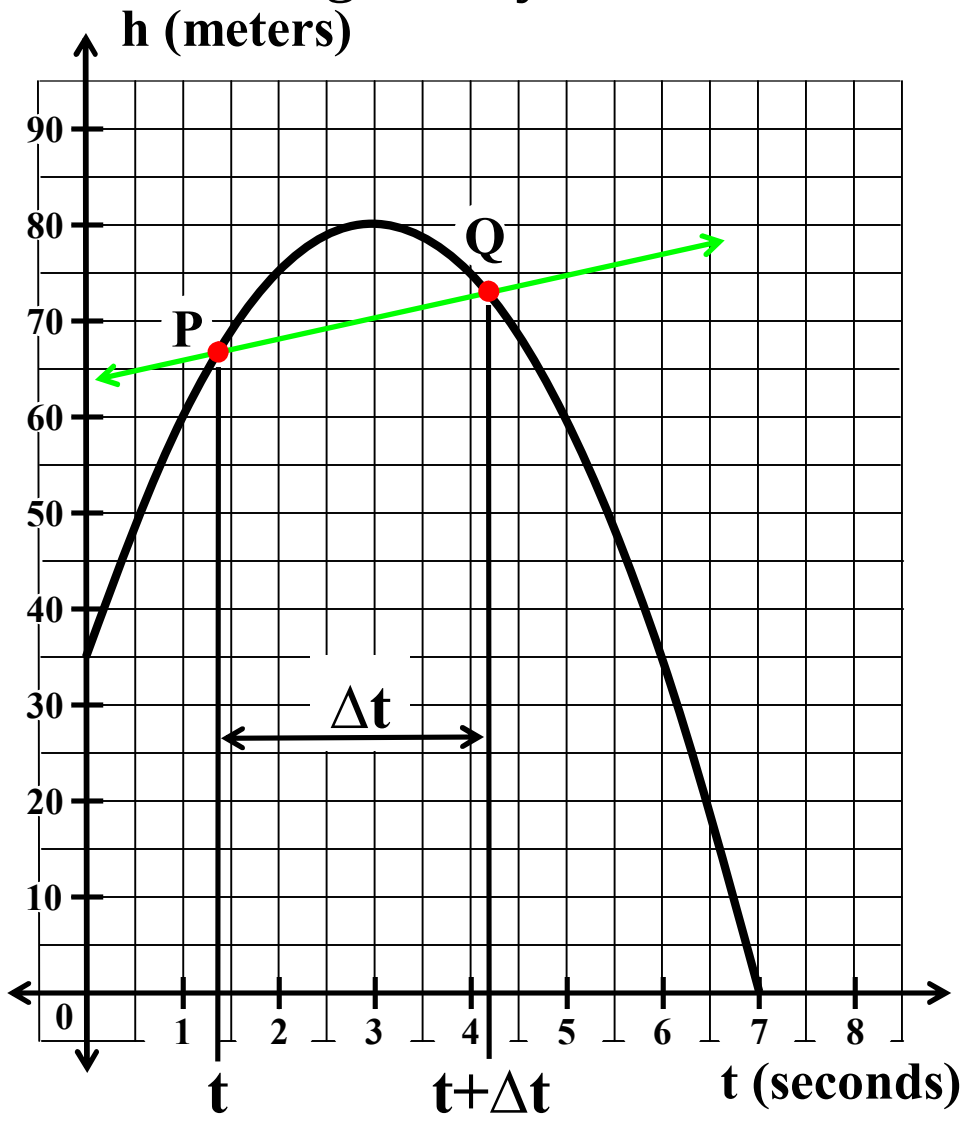

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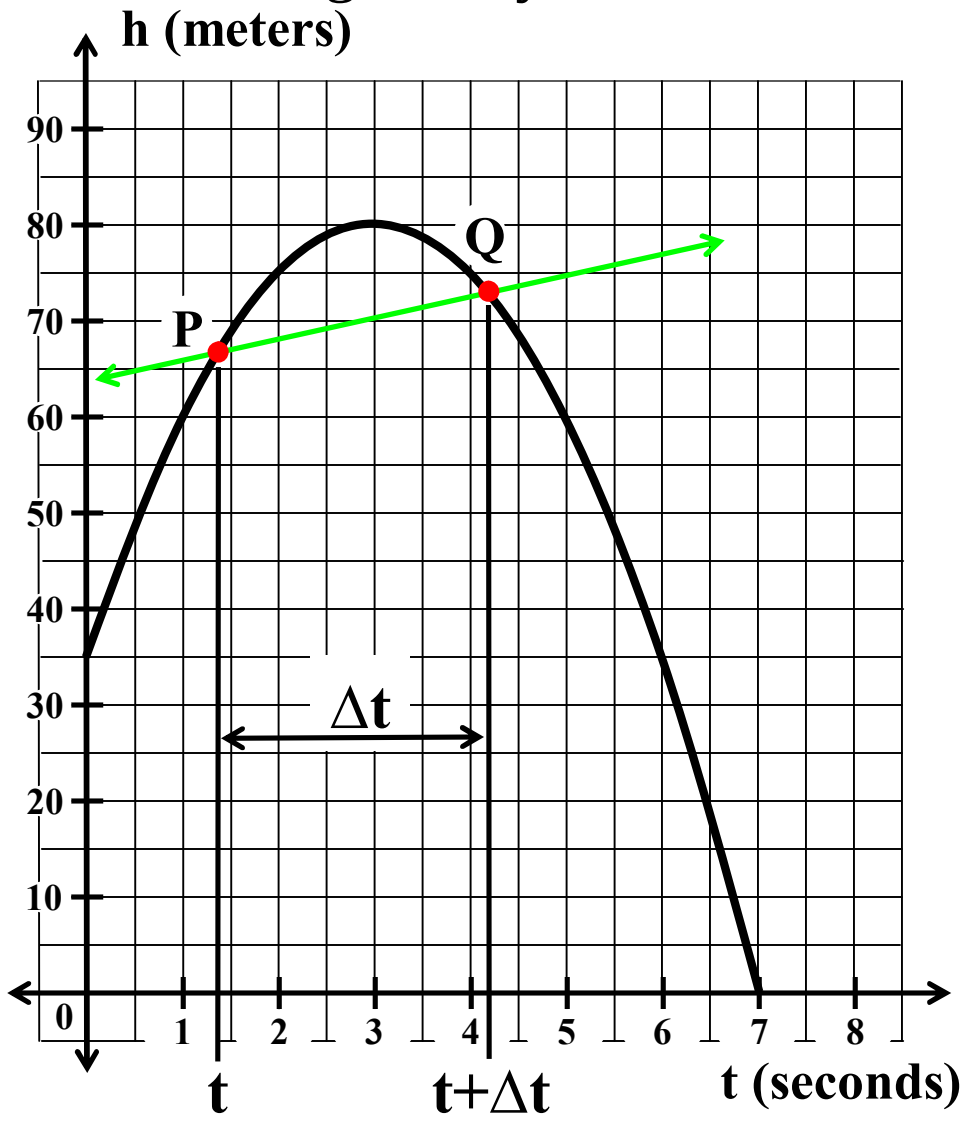

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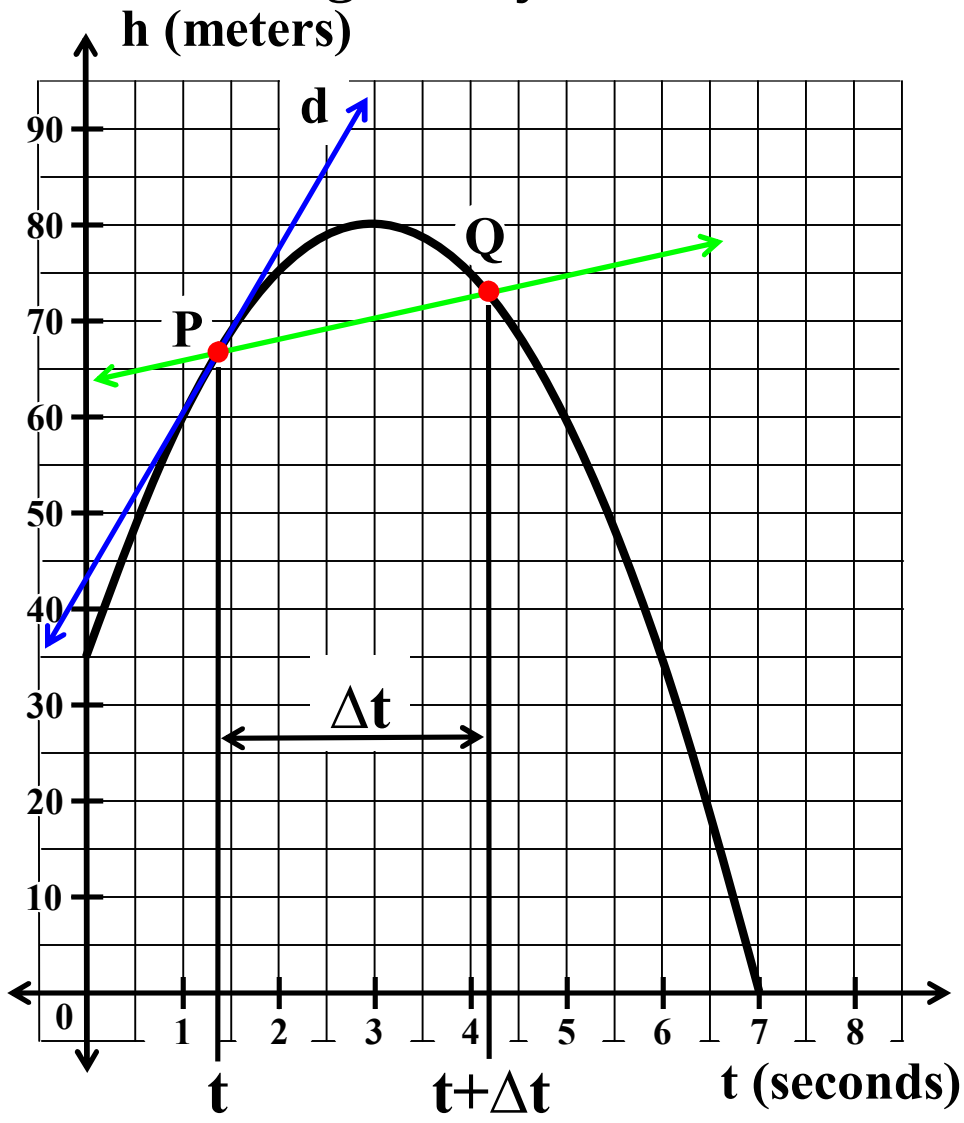

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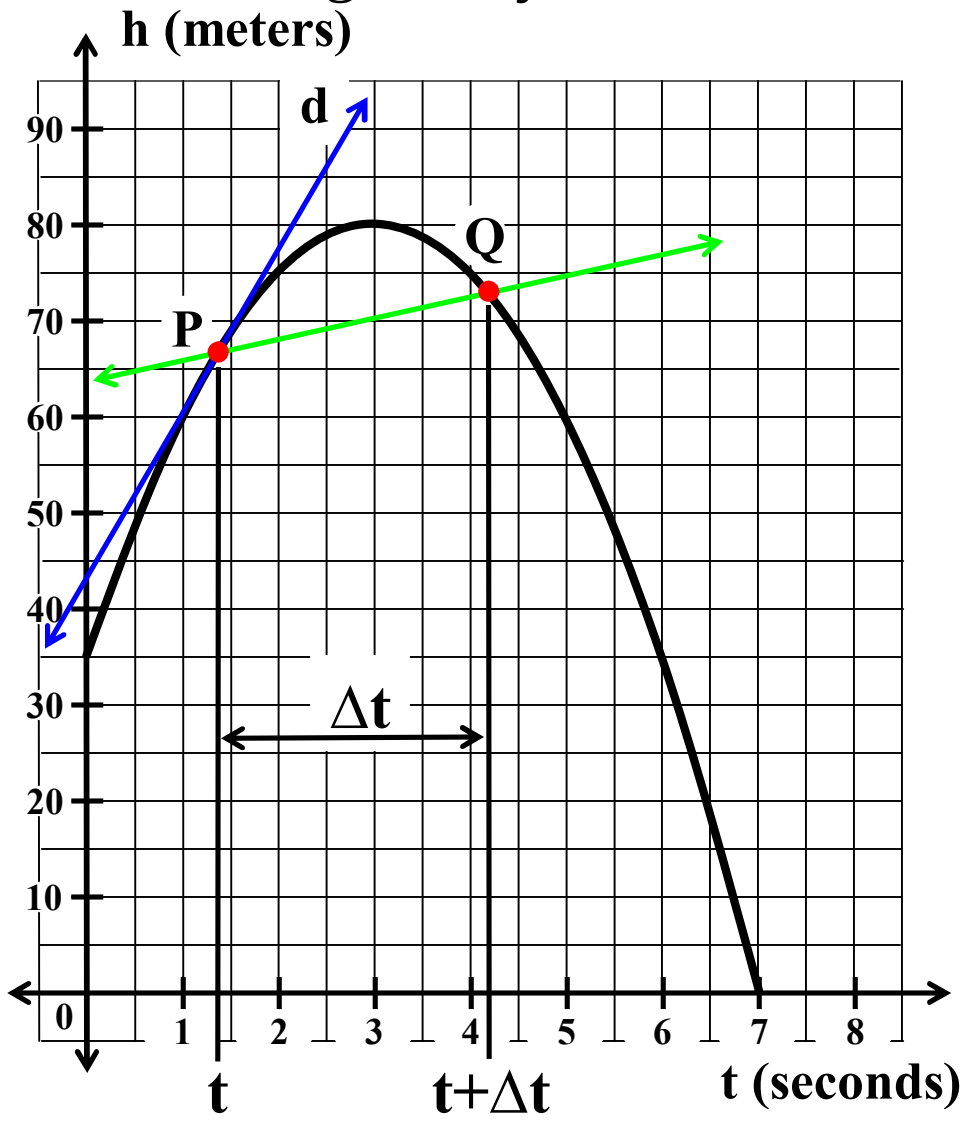

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

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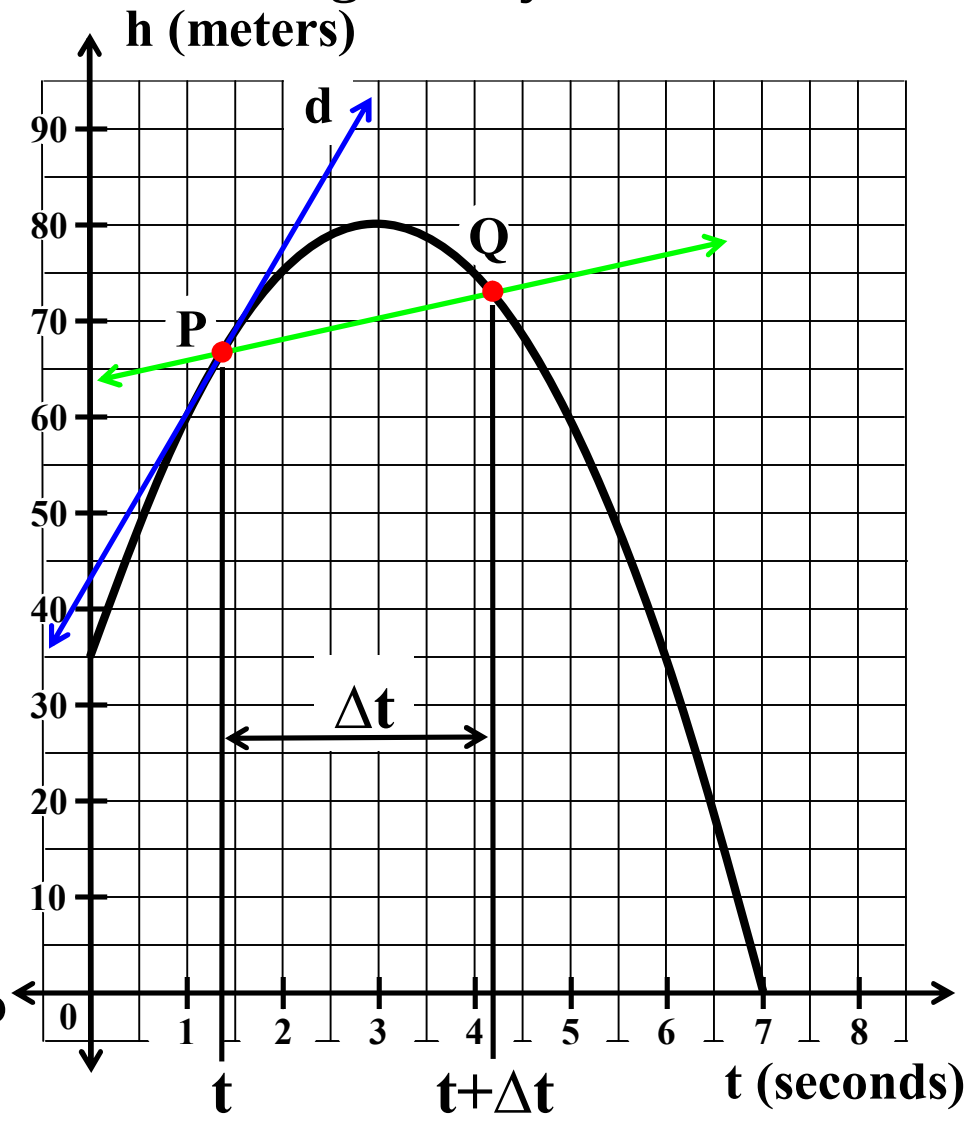

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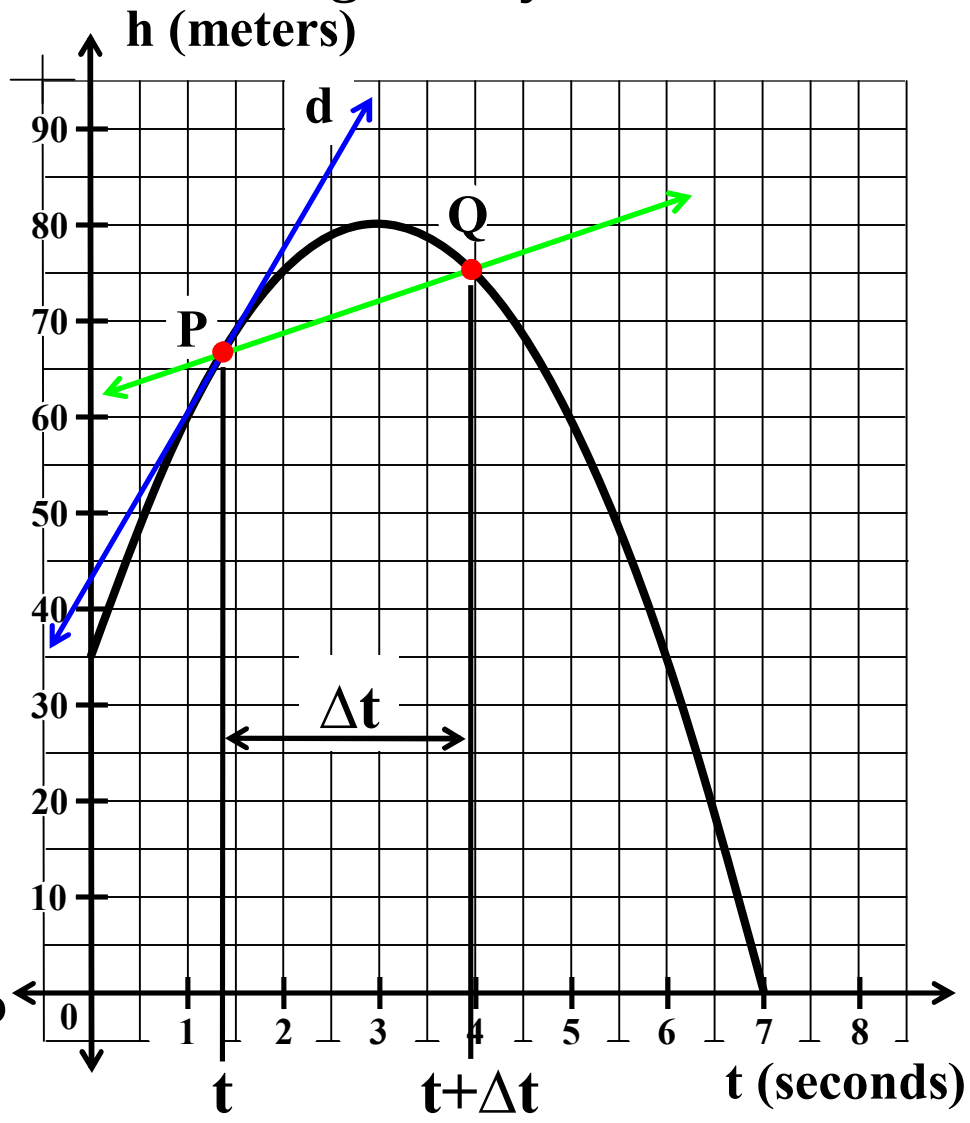

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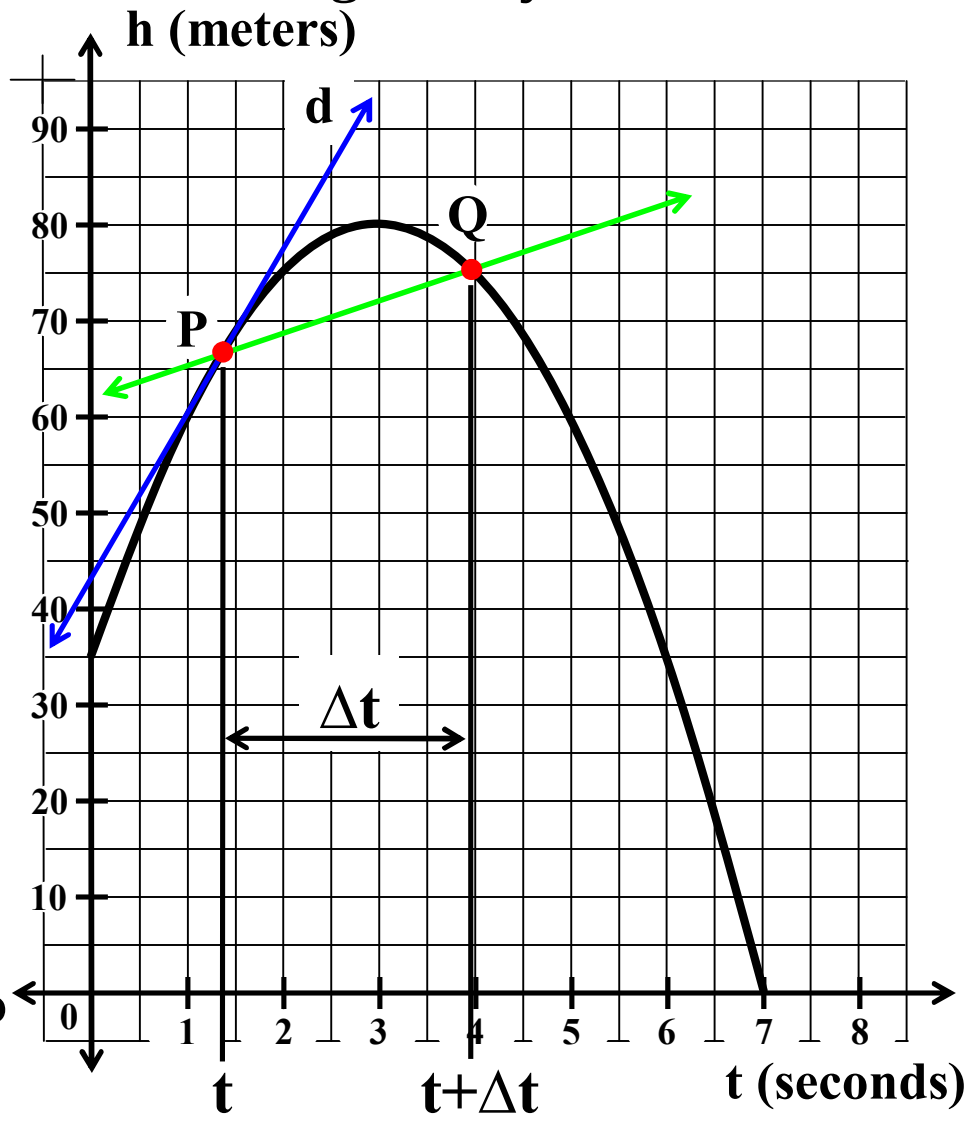

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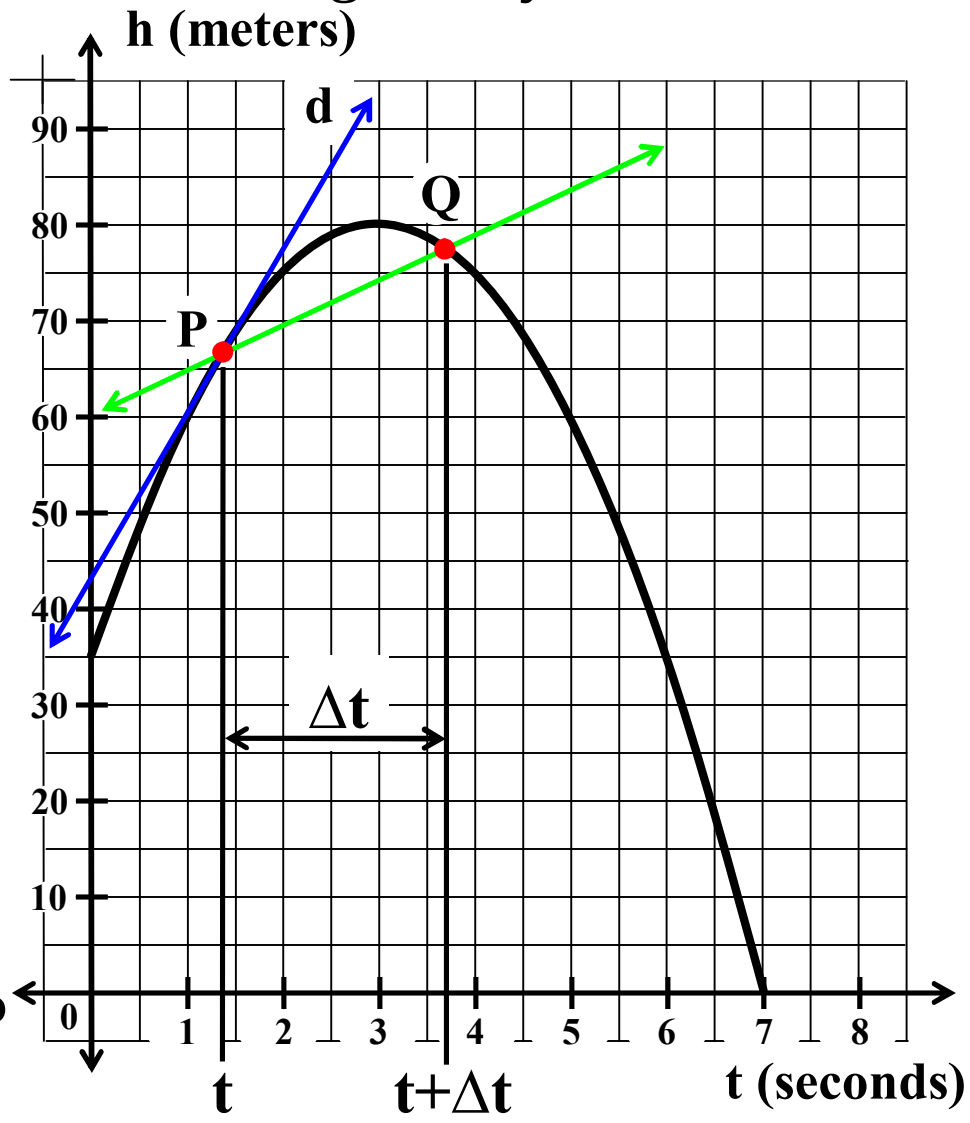

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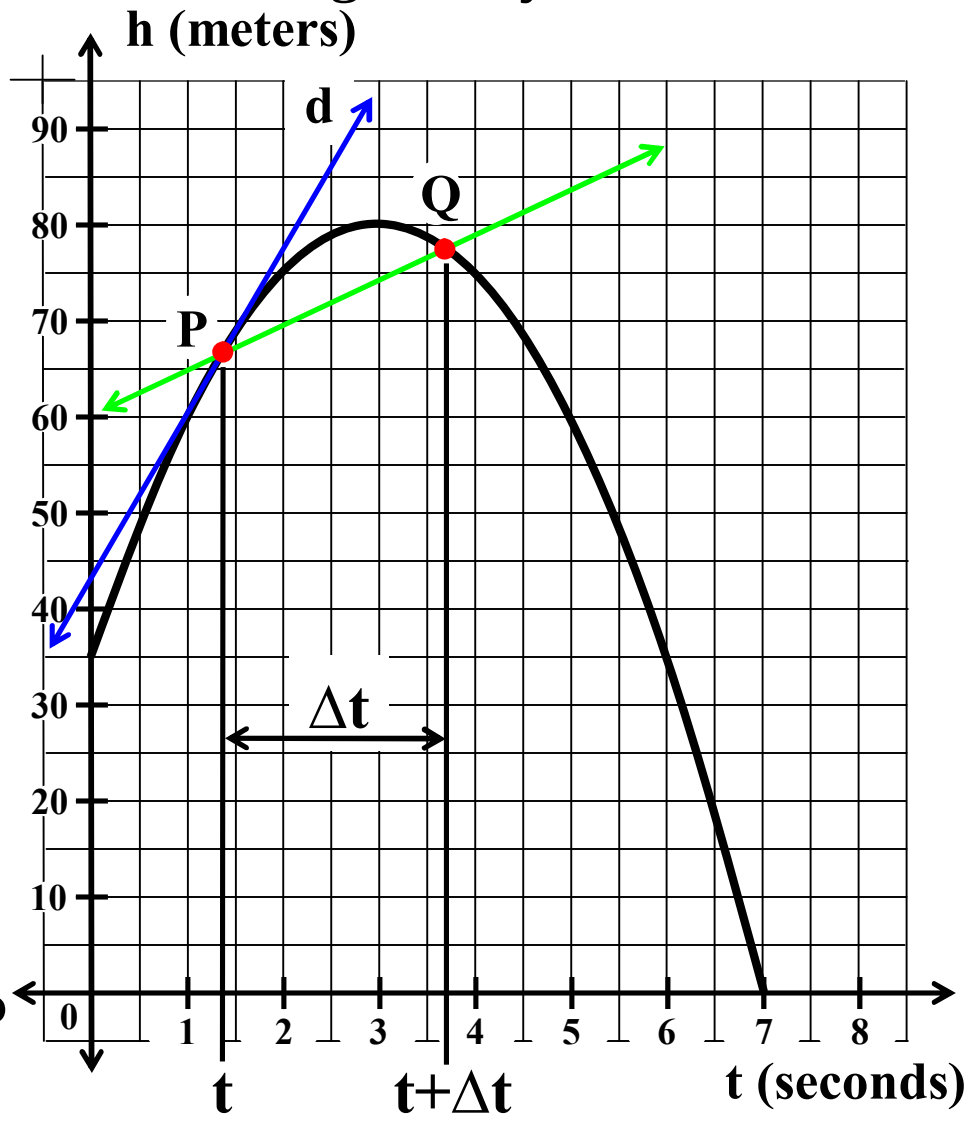

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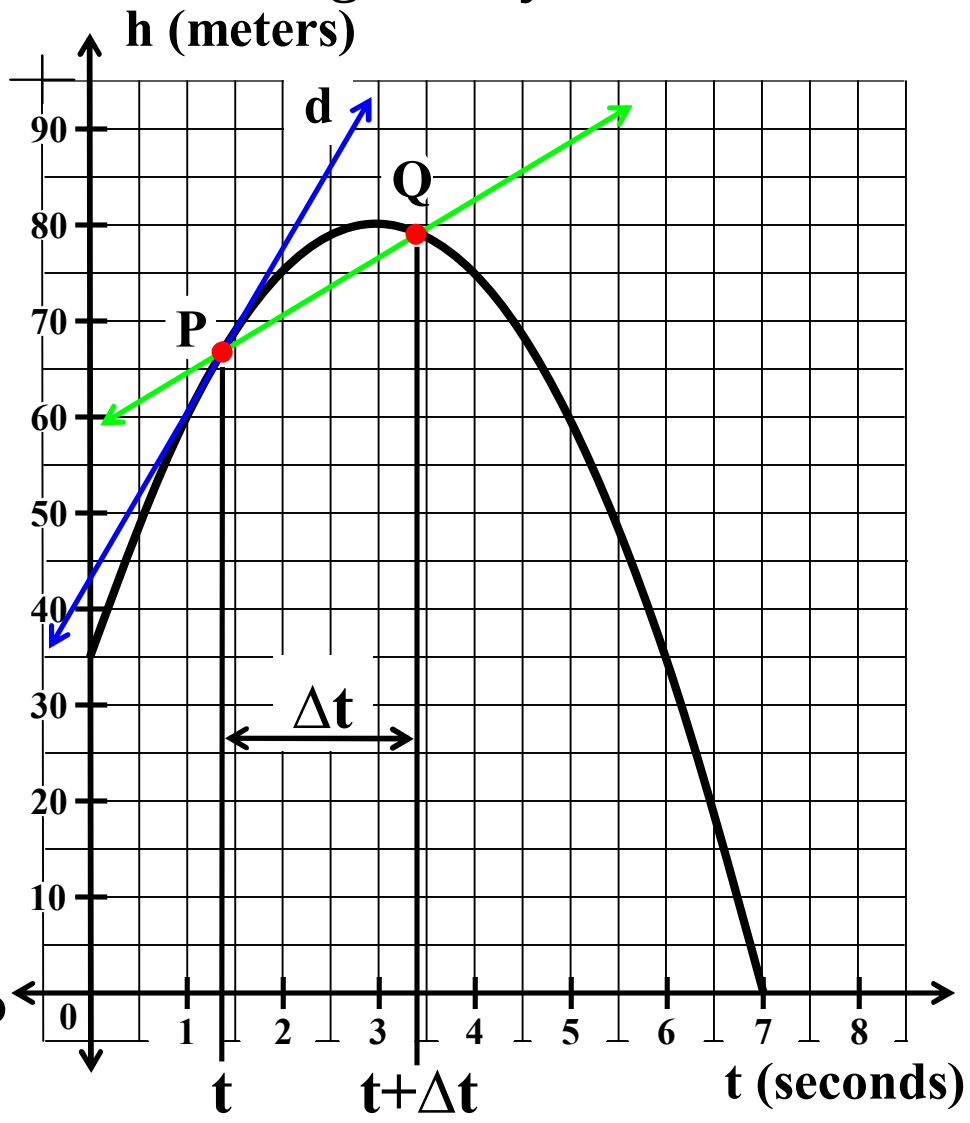

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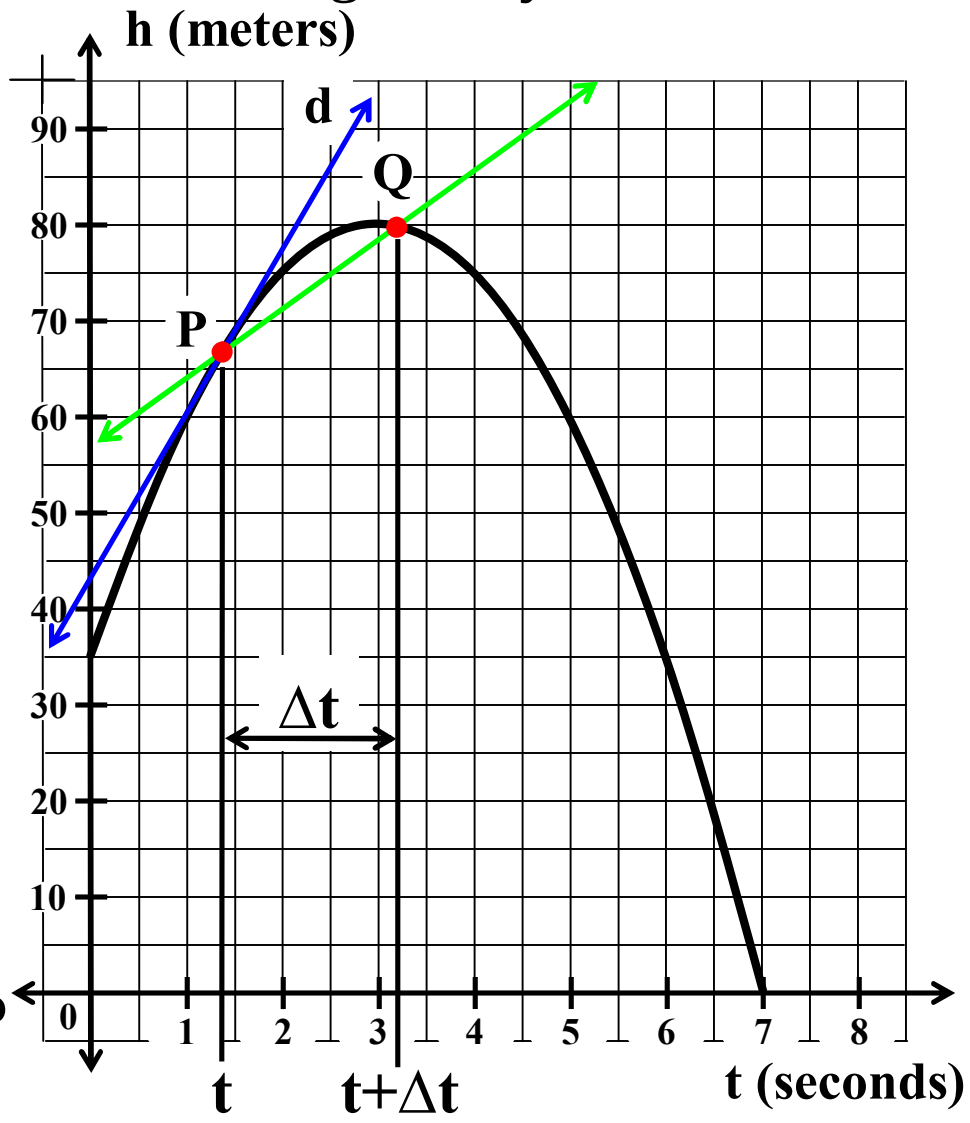

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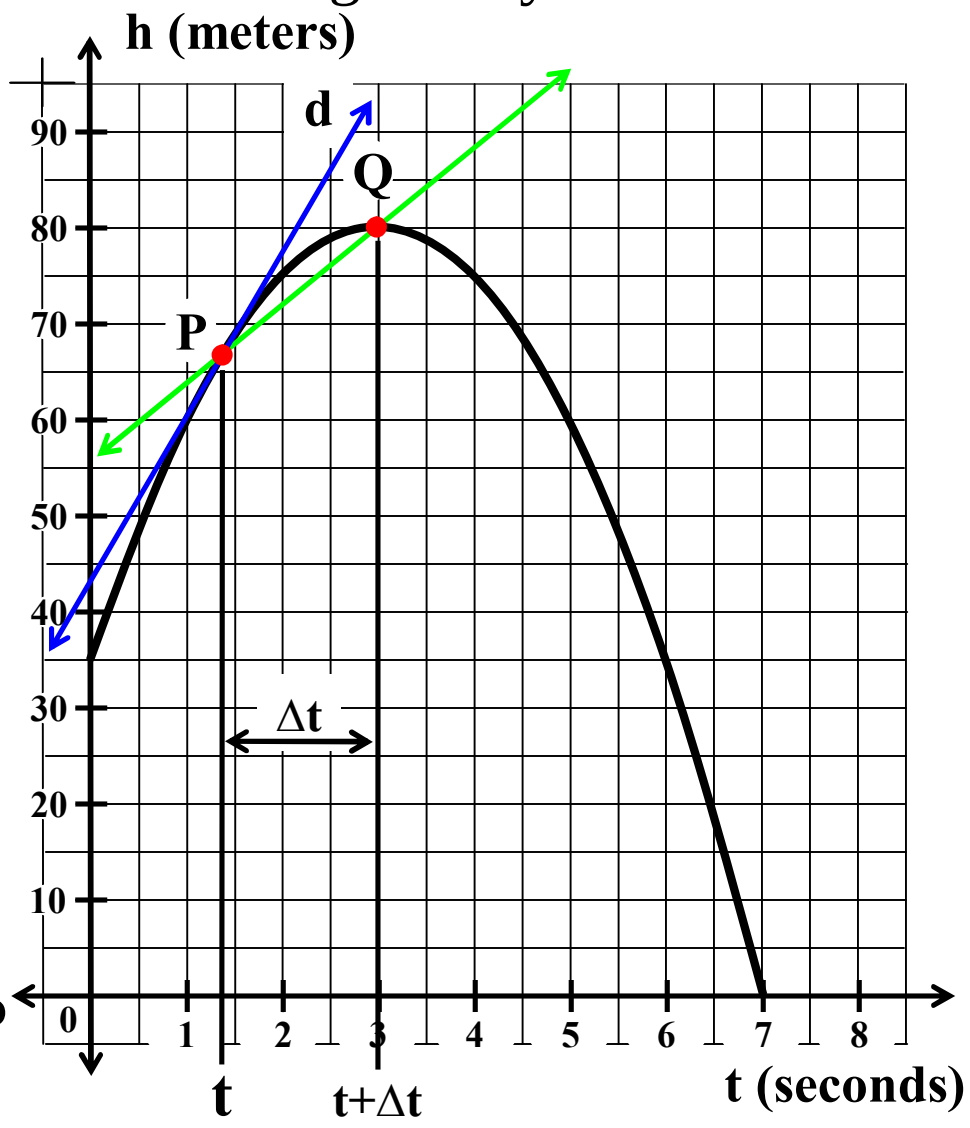

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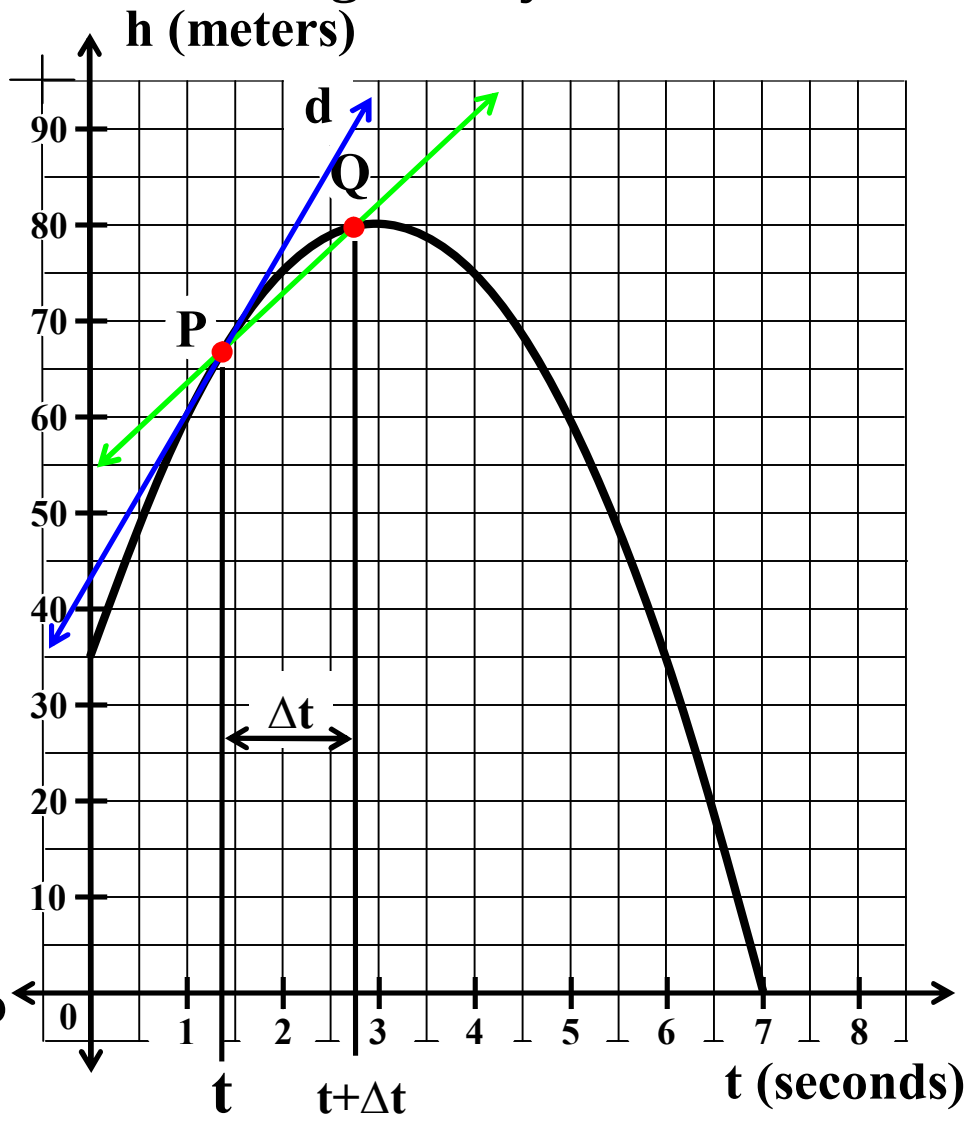

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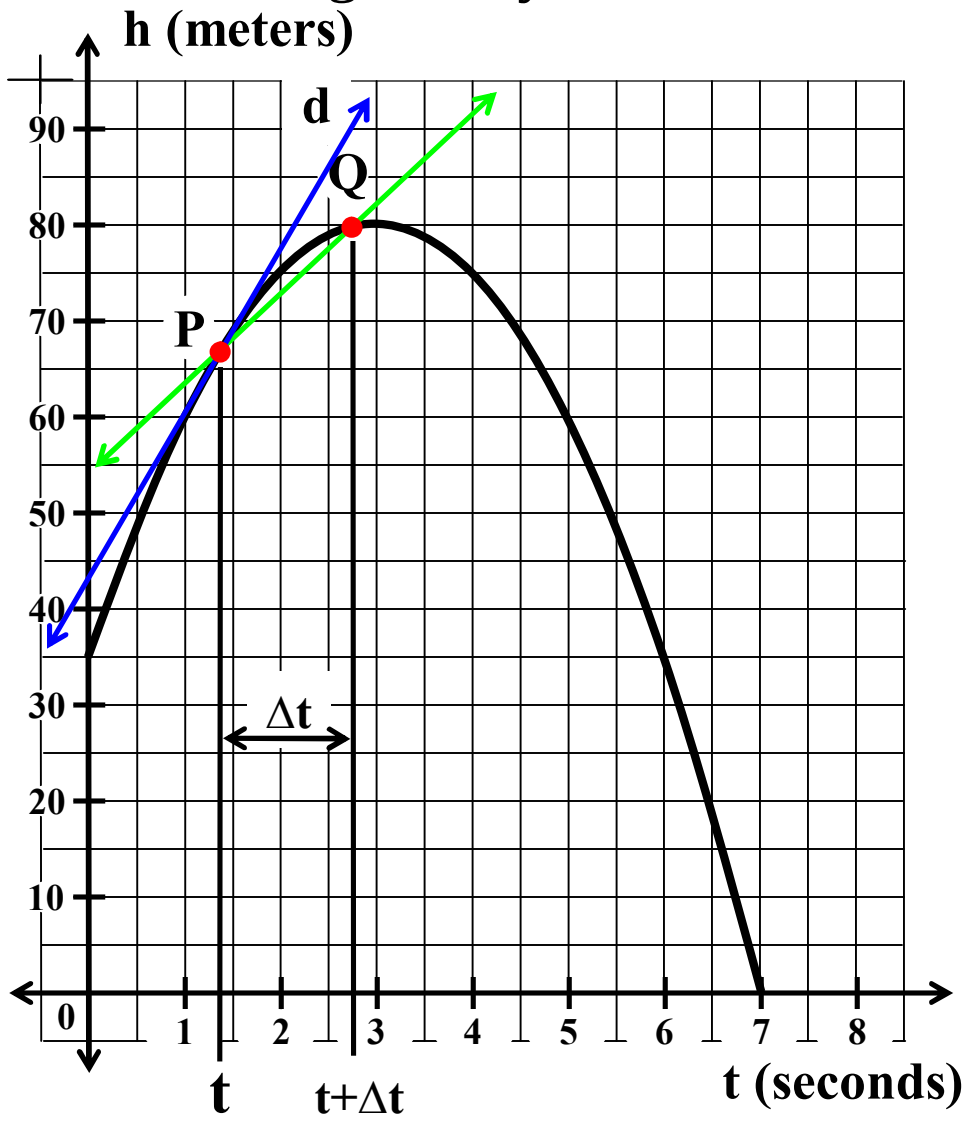

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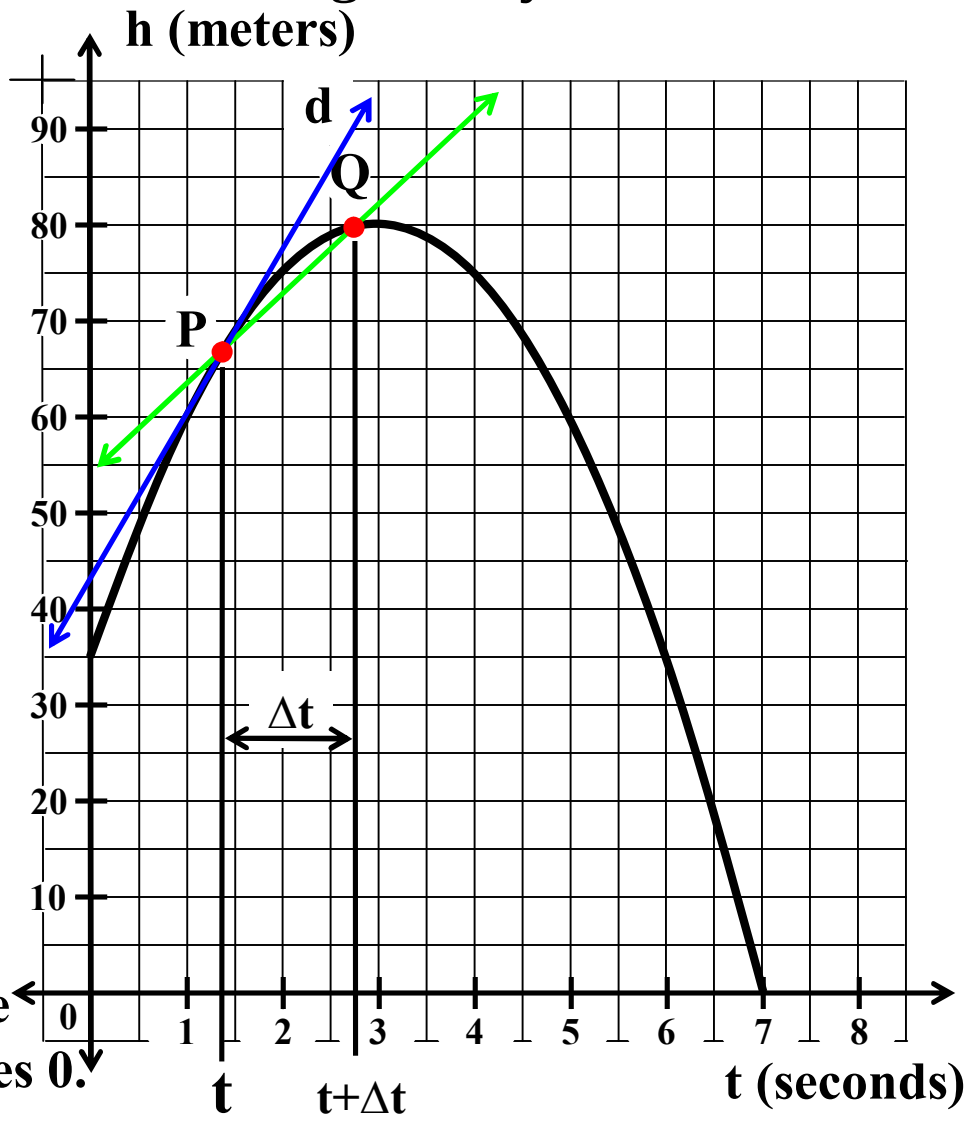

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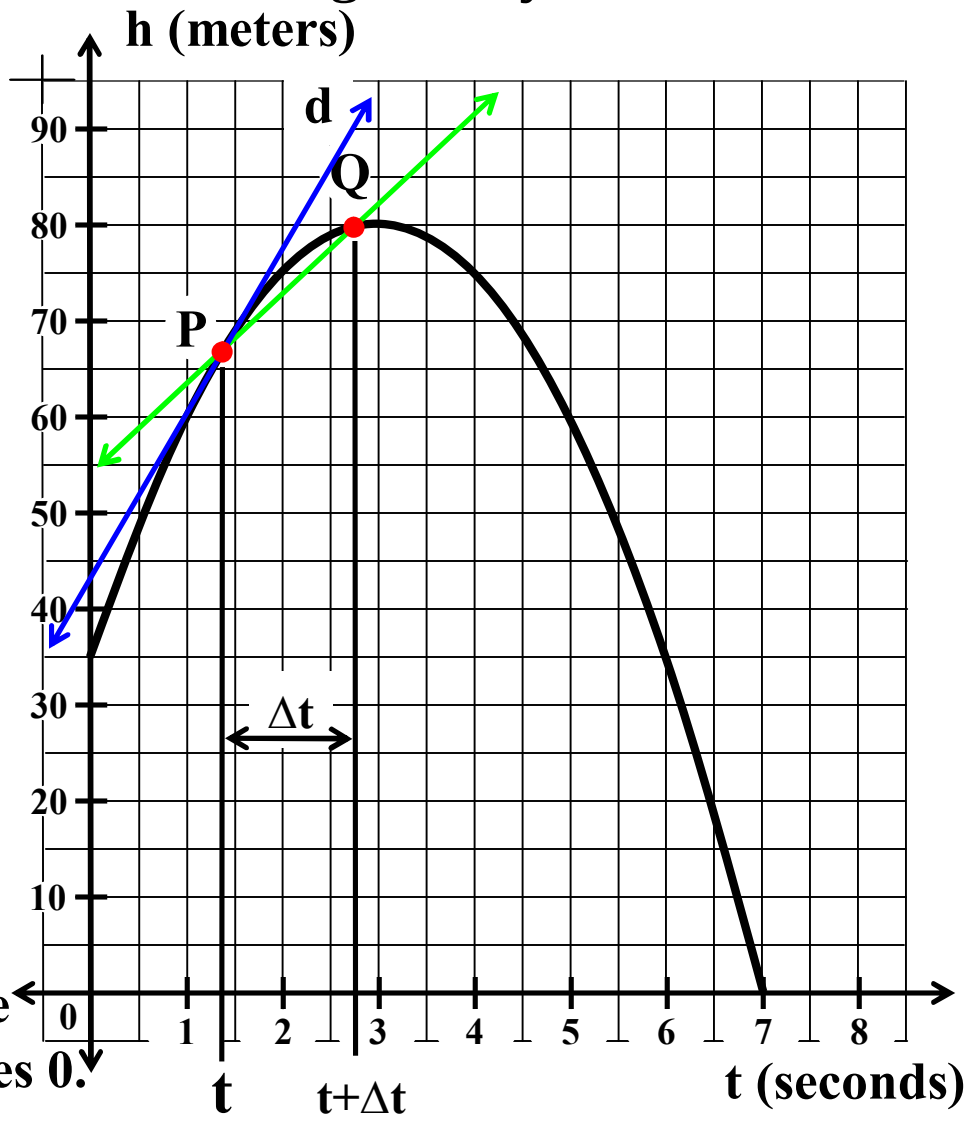

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$$\mathbf{\text{Slope of d} = \lim_{\Delta t \to 0} \left[\frac{f(t + \Delta t) - f(t)}{\Delta t} \right]}$$

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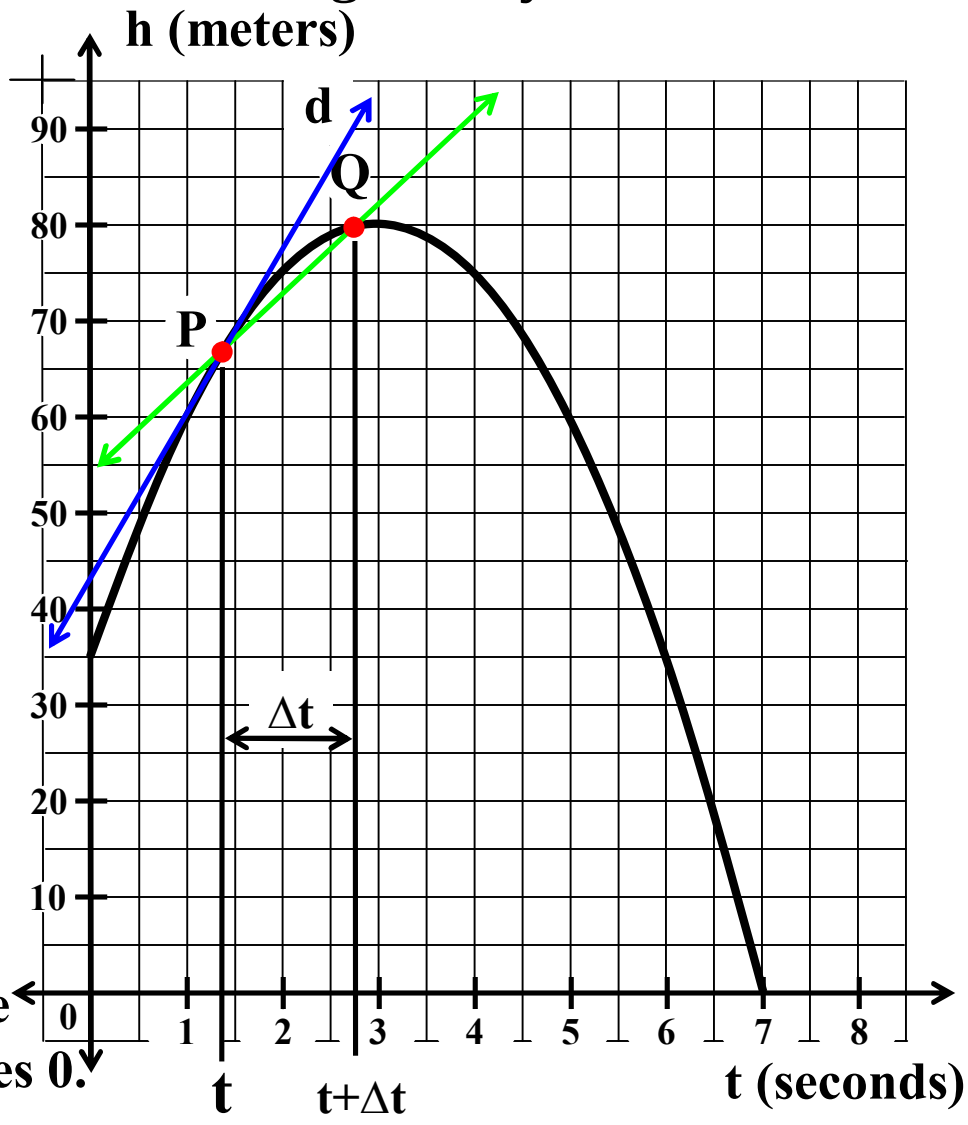

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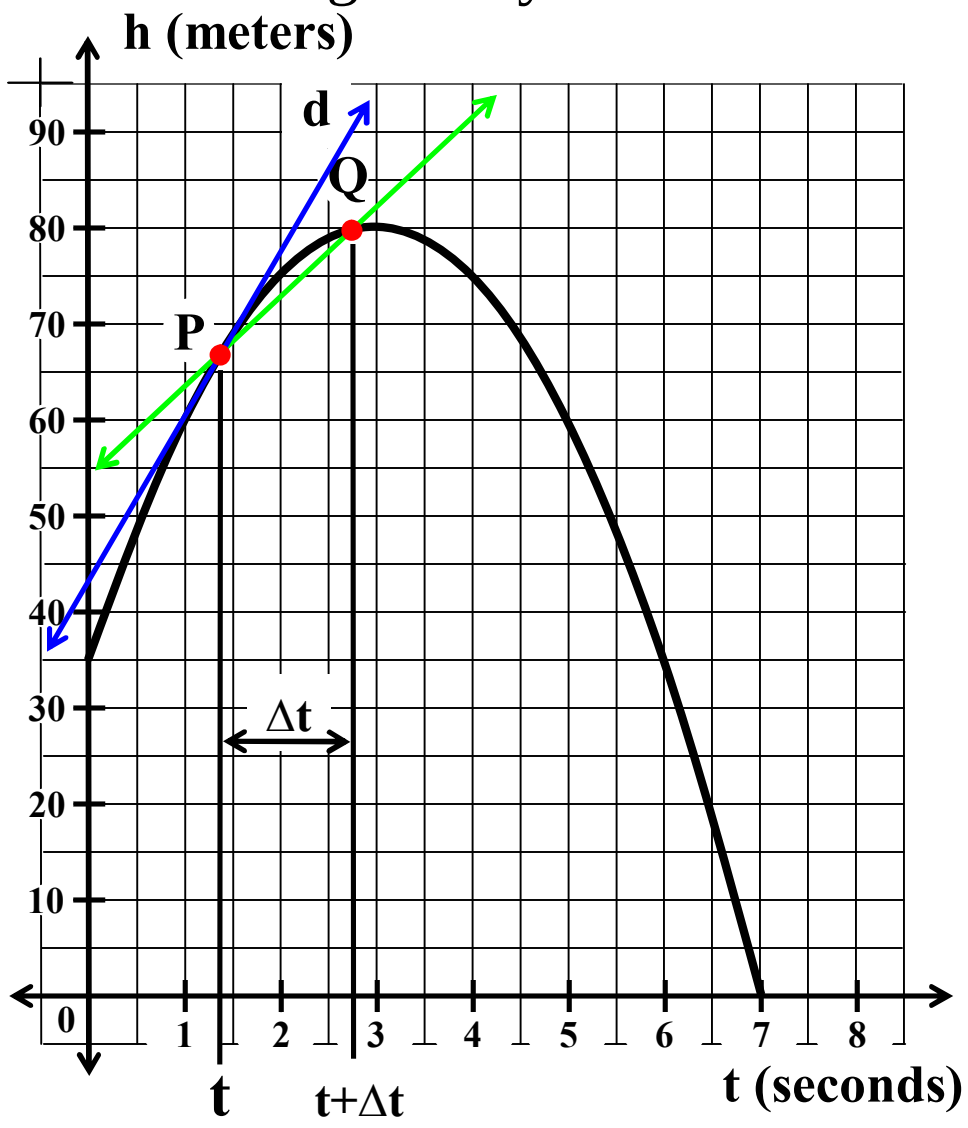

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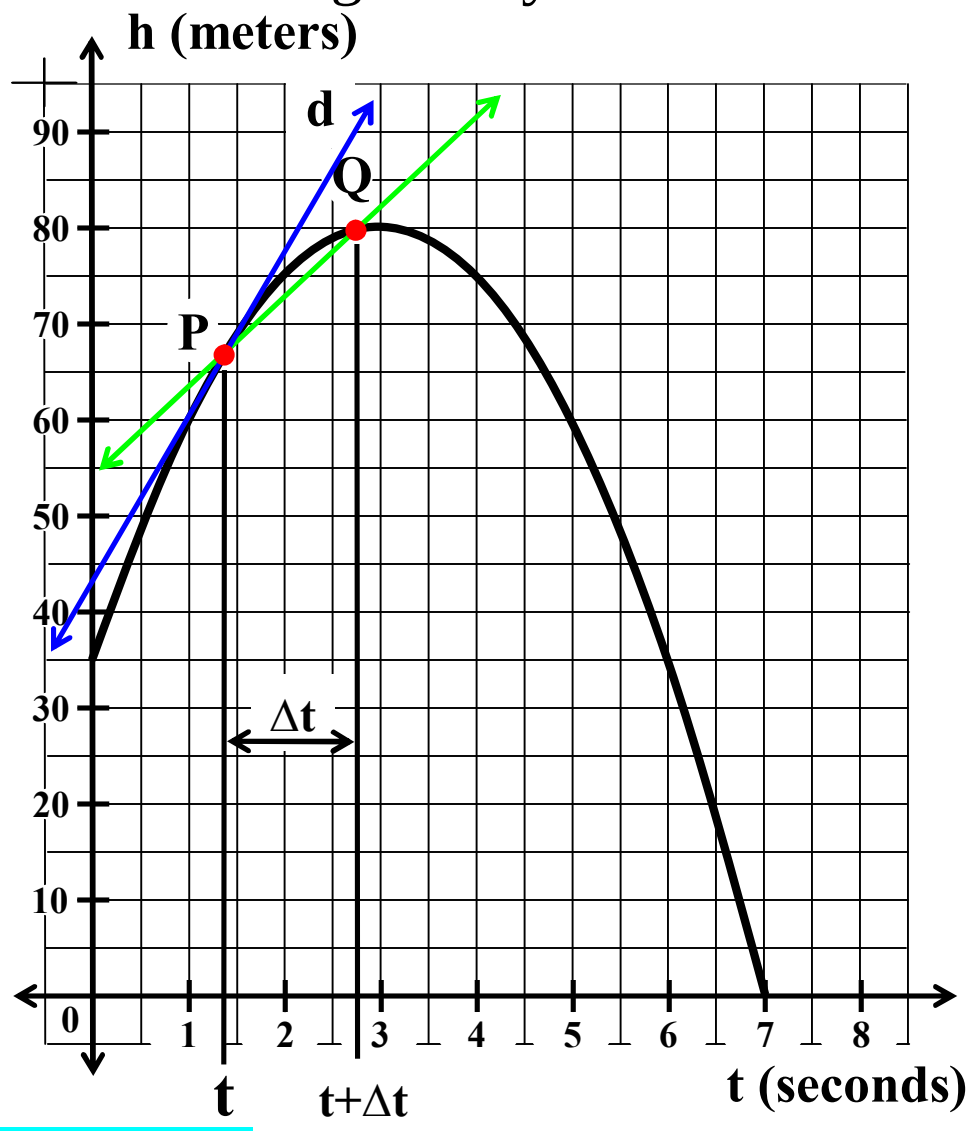

This, of course, is the derivative of function f !!!

Calculus Class Worksheet #5a Unit 1

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Calculus Class Worksheet #5a Unit 1

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V =

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$\mathbf{V = f'(t) = -10t}$

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2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0		
1		
2		
3		
4		
5		
6		
7		

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t seconds	f(t) meters	f ′(t) meters per second
→ 0		
1		
2		
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→ 0	35	
1		
2		
3		
4		
5		
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t seconds	f(t) meters	f ′(t) meters per second
0	35	
→ 1		
2		
3		
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t seconds	f(t) meters	f ′(t) meters per second
0	35	
→ 1	60	
2		
3		
4		
5		
6		
7		

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0	35	
1	60	
→ 2		
3		
4		
5		
6		
7		

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t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
→ 2	75	
3		
4		
5		
6		
7		

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0	35	
1	60	
2	75	
→ 3		
4		
5		
6		
7		

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t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
→ 3	80	
4		
5		
6		
7		

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1	60	
2	75	
3	80	
→ 4		
5		
6		
7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$V = f'(t) = \underline{-10t + 30}$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
→ 4	75	
5		
6		
7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$V = f'(t) = \underline{-10t + 30}$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
→ 5		
6		
7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$V = f'(t) = \underline{-10t + 30}$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
→ 5	60	
6		
7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$V = f'(t) = \underline{-10t + 30}$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
→ 6		
7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$V = f'(t) = \underline{-10t + 30}$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
→ 6	35	
7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
→ 7		

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function

$h = f(t) = -5t^2 + 30t + 35$.

1. Express the velocity of the ball as a function of t.

$V = f'(t) = \underline{-10t + 30}$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
→ 7	0	

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = \underline{-10t + 30}}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

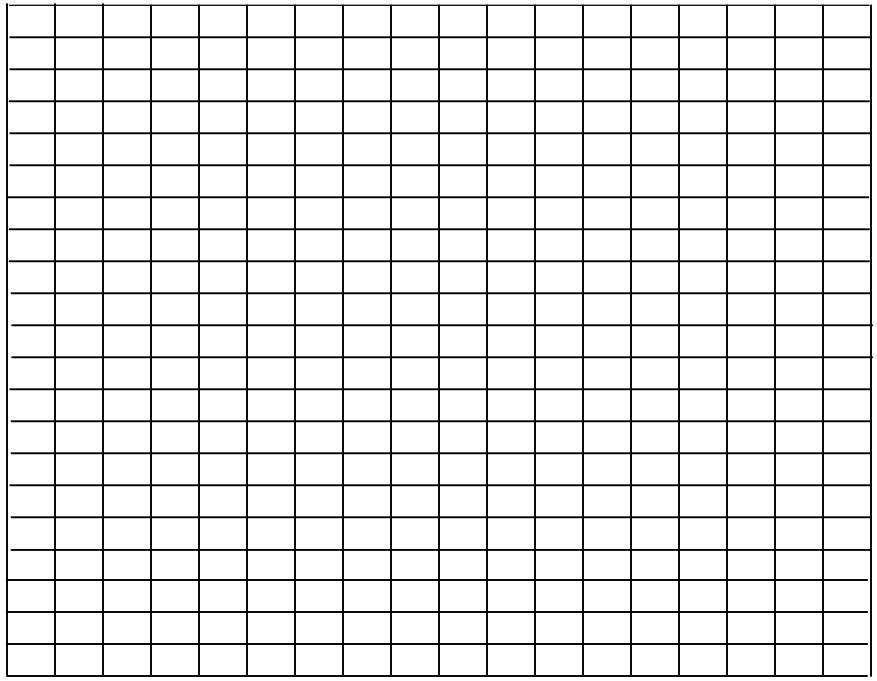
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $h = f(t) = -5t^2 + 30t + 35$.

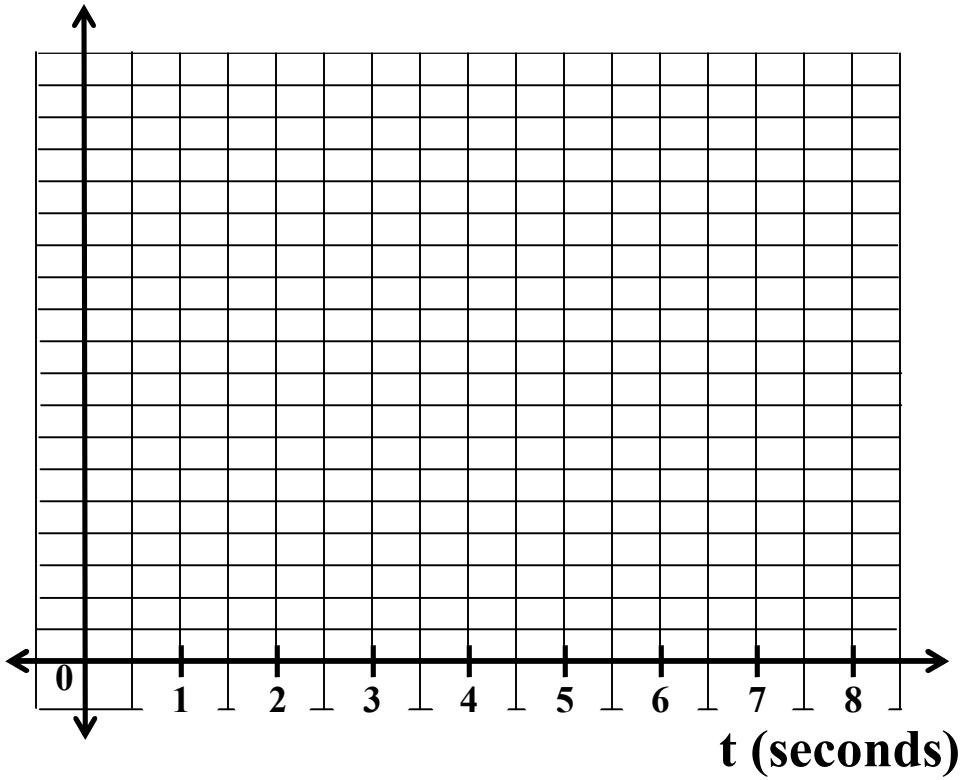
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $h = f(t) = -5t^2 + 30t + 35$.

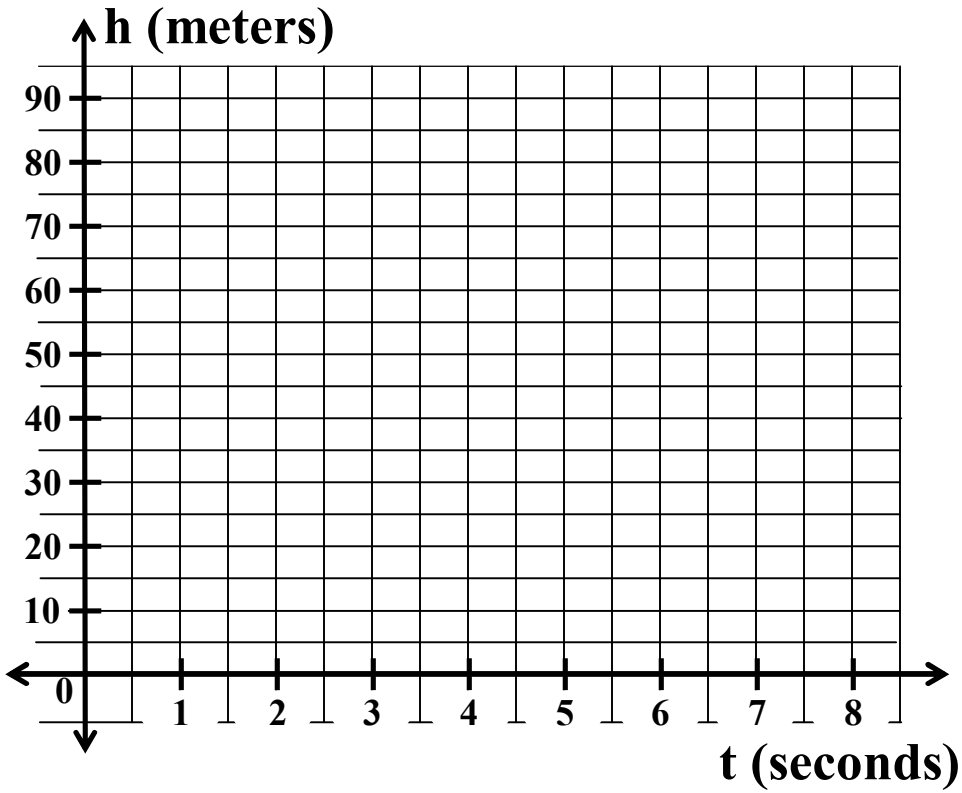
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $h = f(t) = -5t^2 + 30t + 35$.

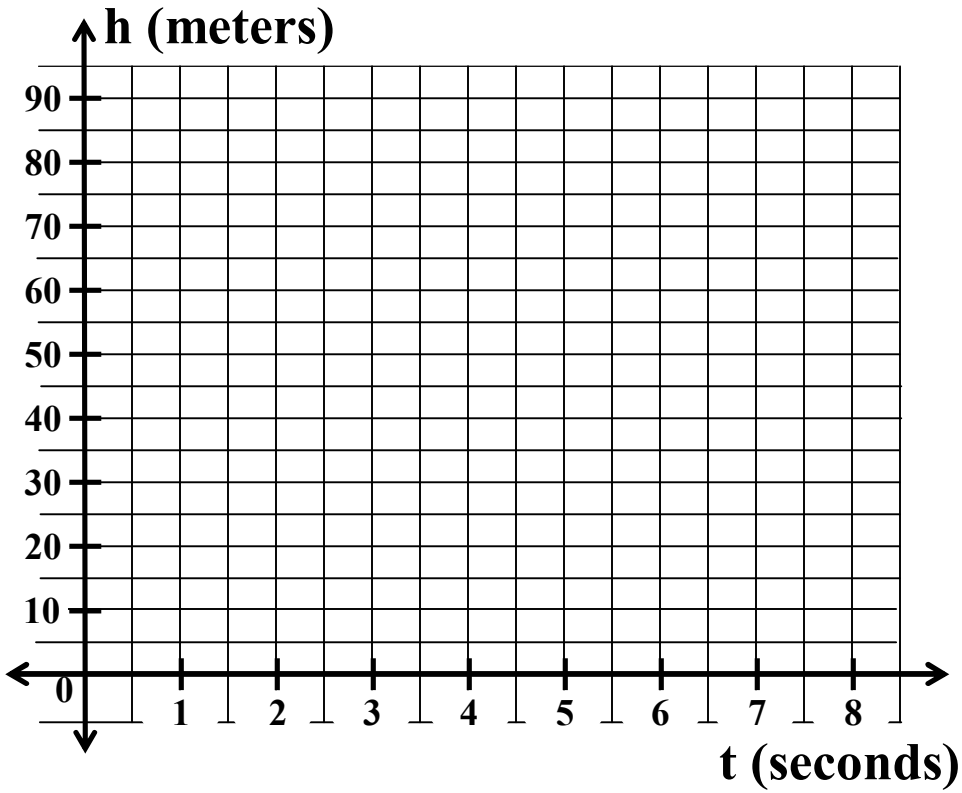
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $h = f(t) = -5t^2 + 30t + 35$.

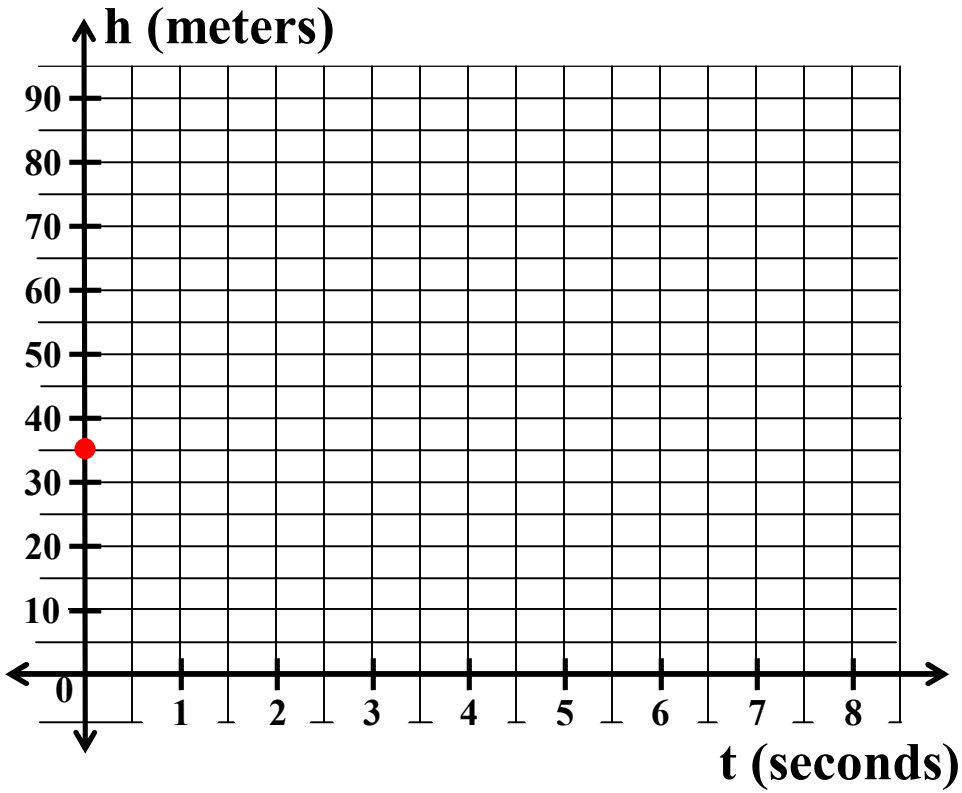
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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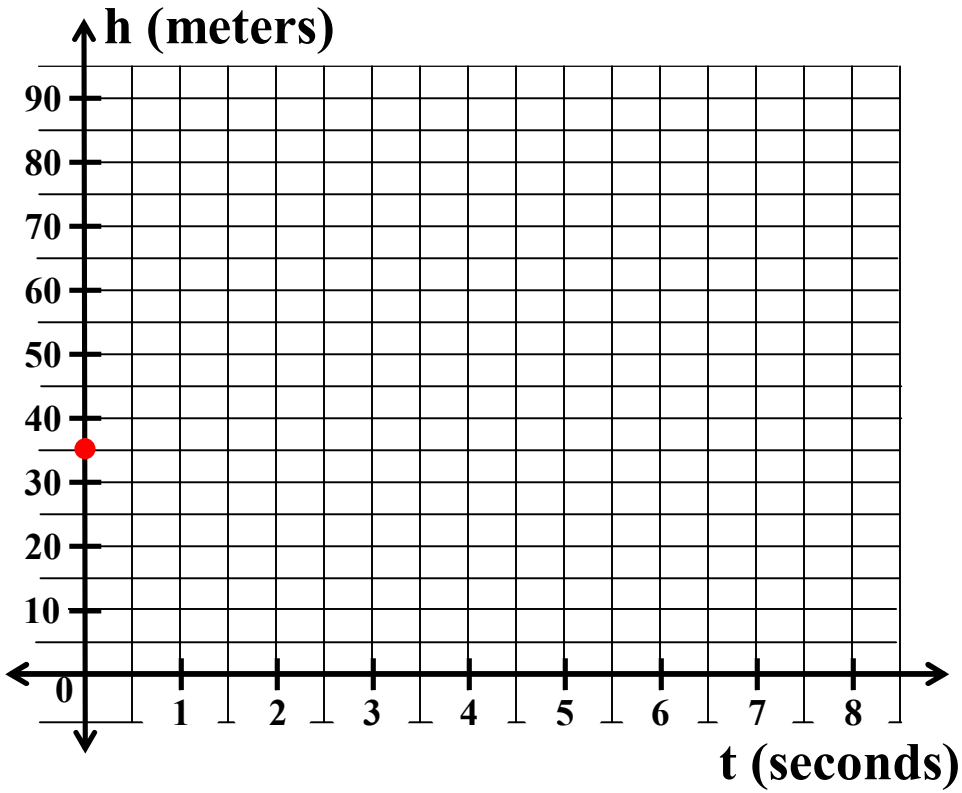
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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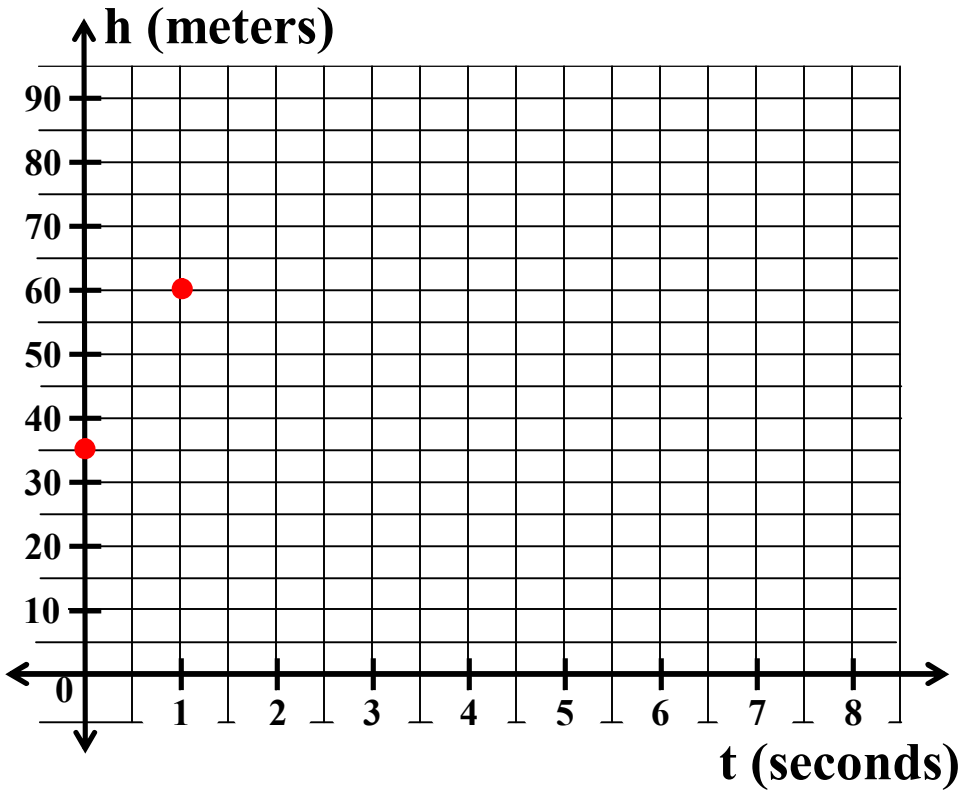
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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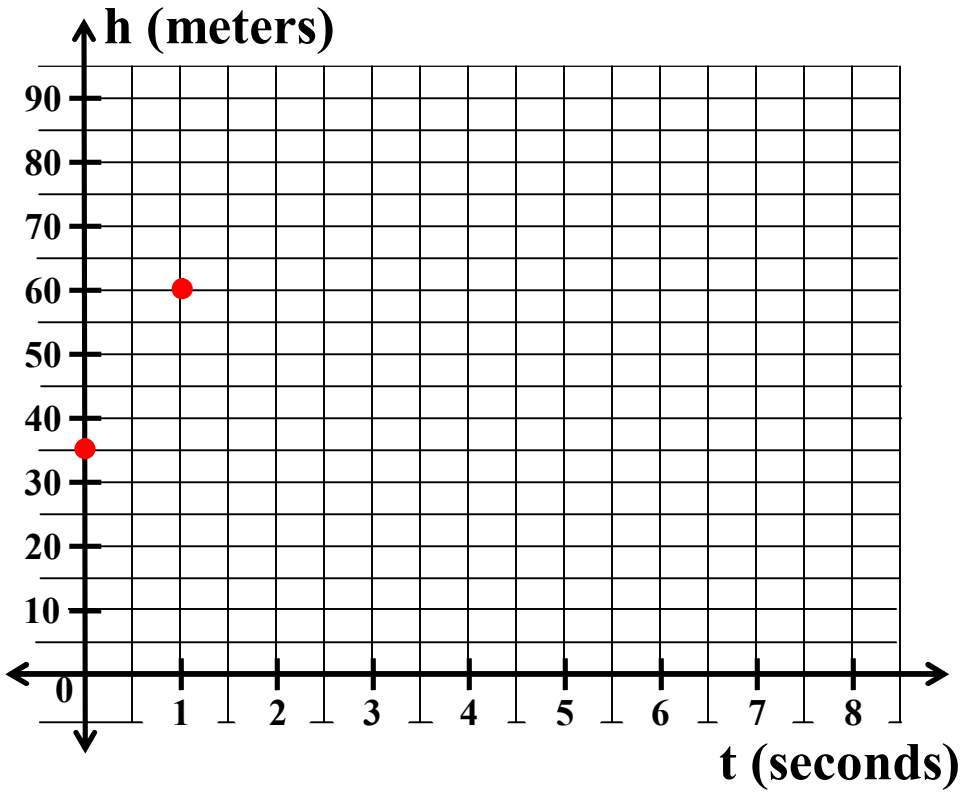
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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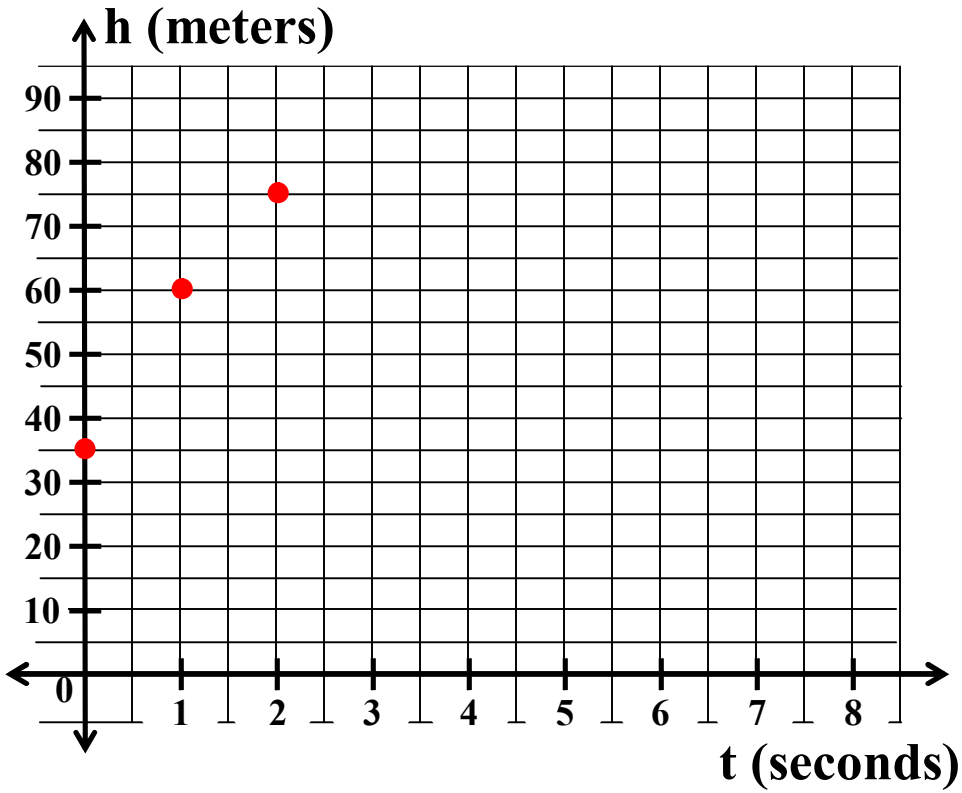
$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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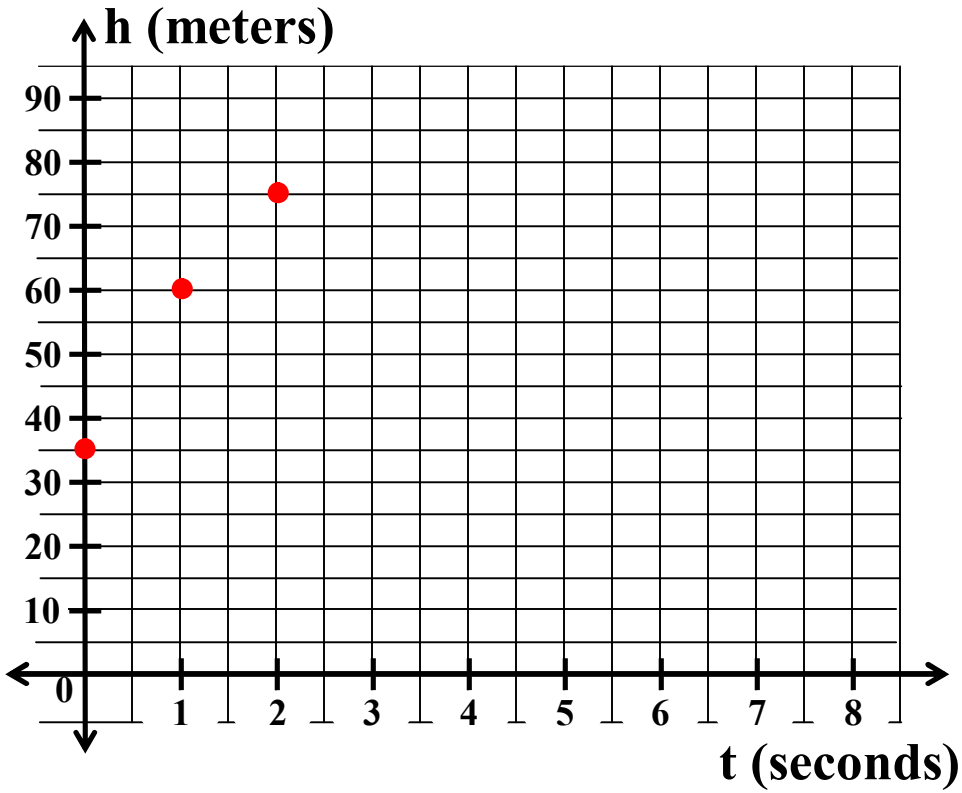
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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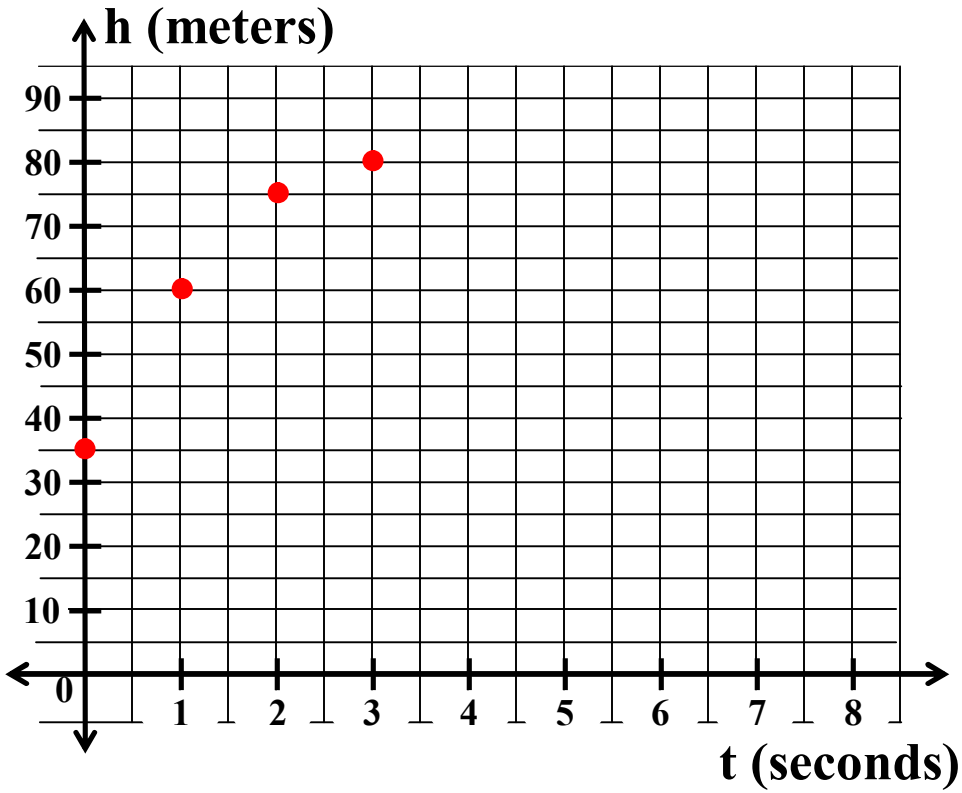
$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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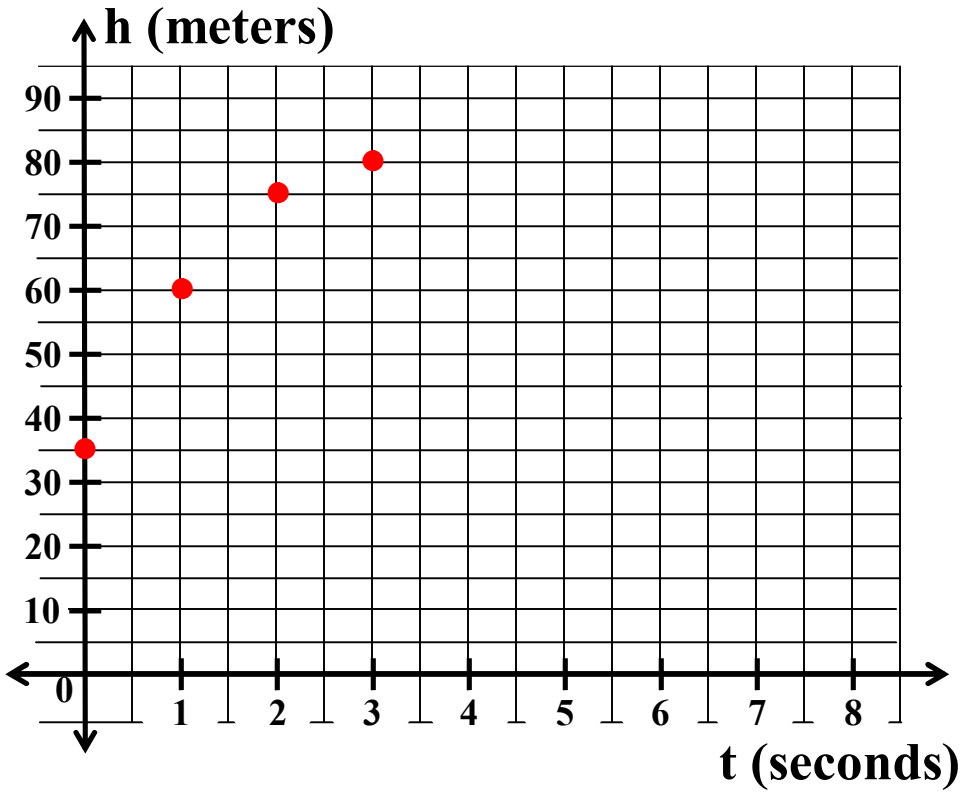
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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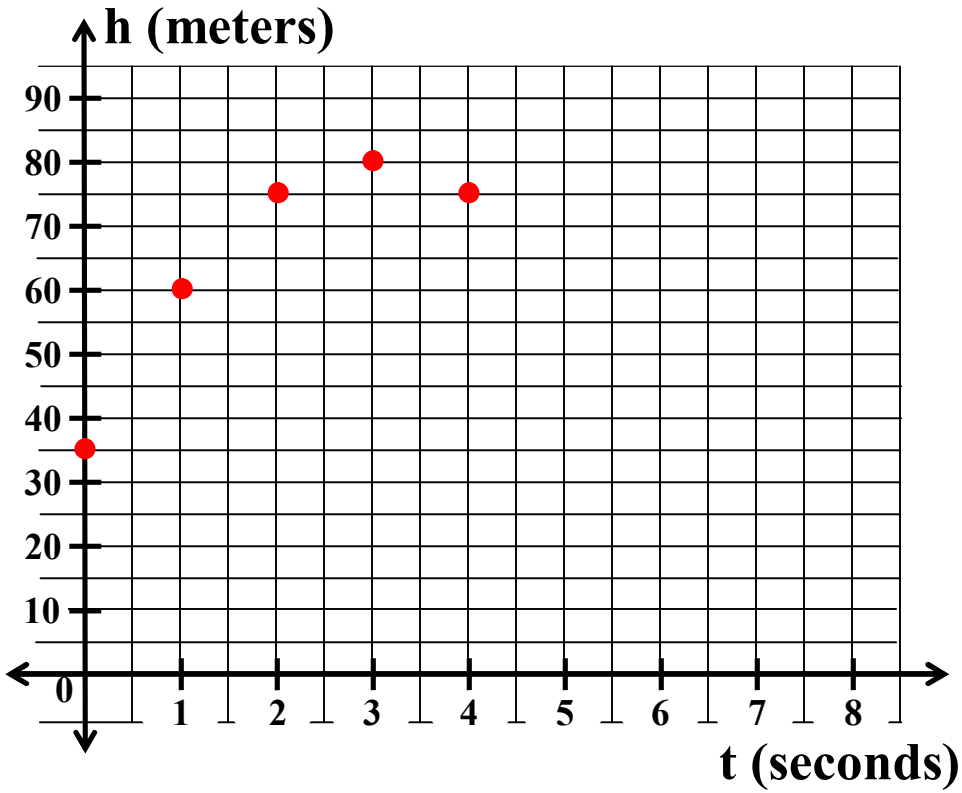
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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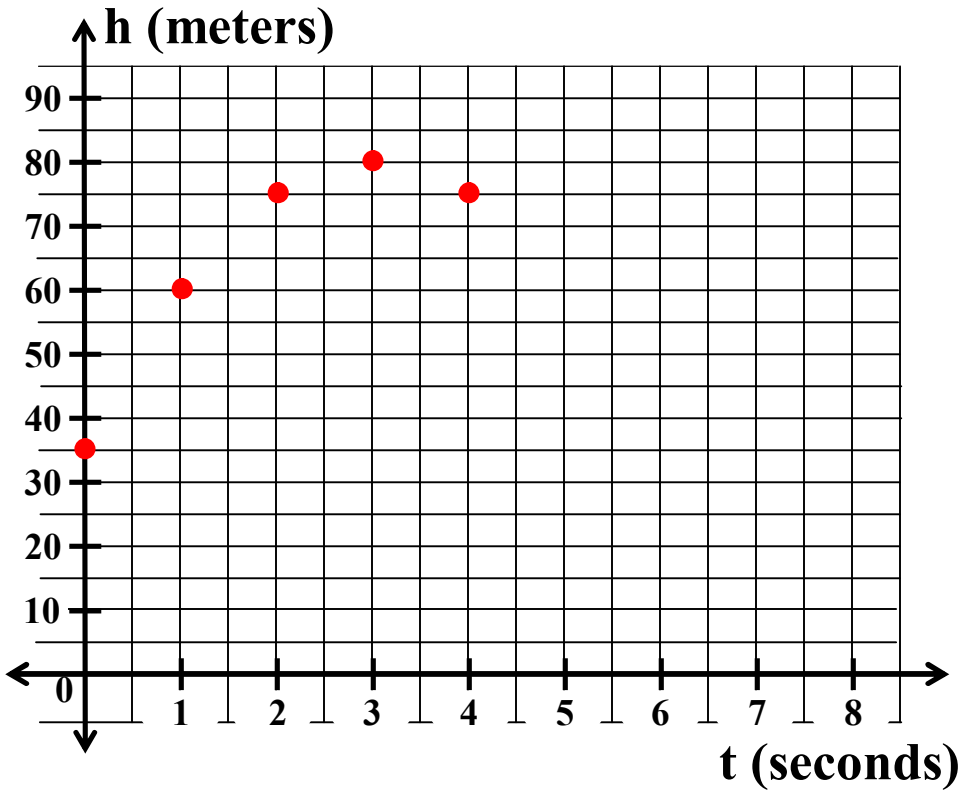
$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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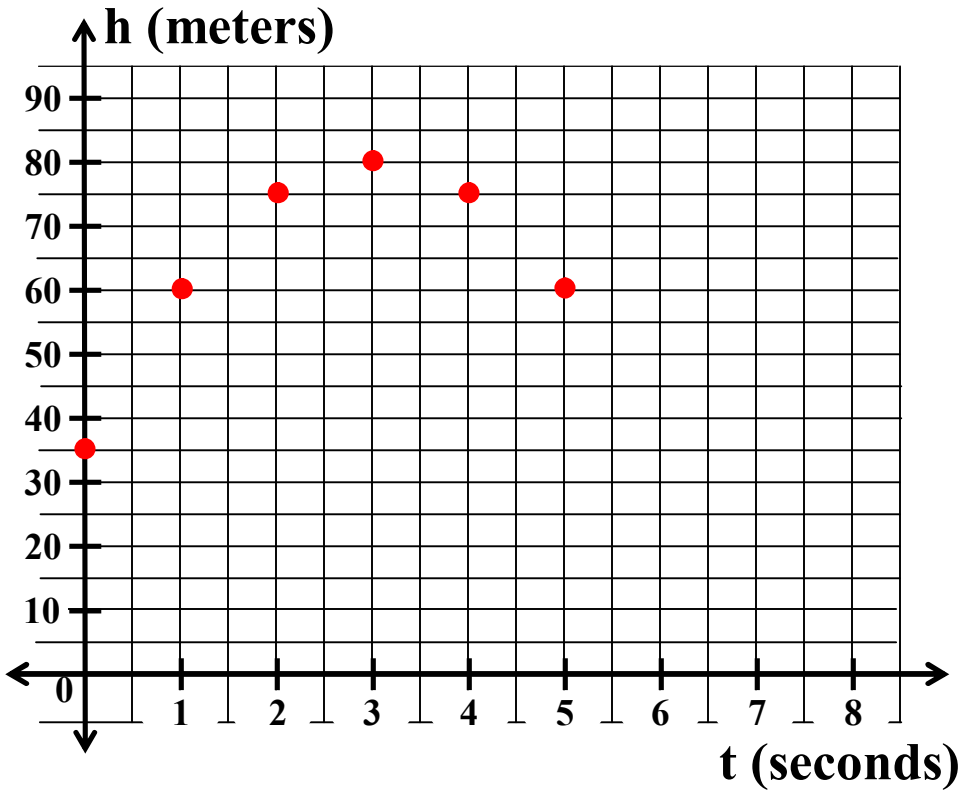
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = \underline{-10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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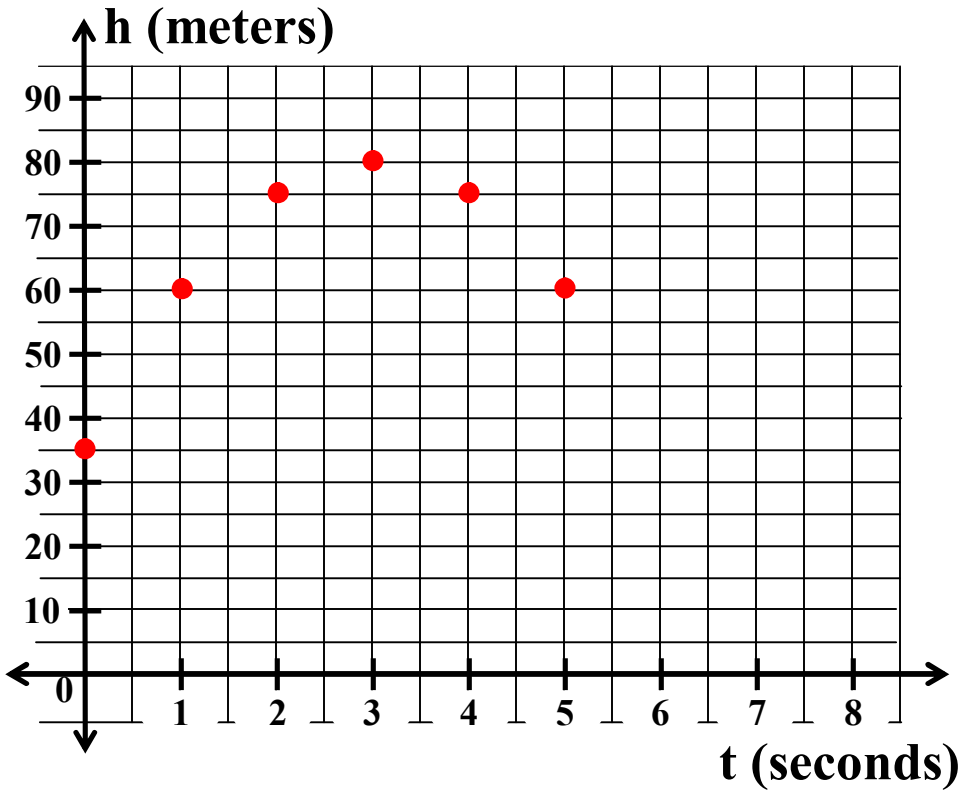
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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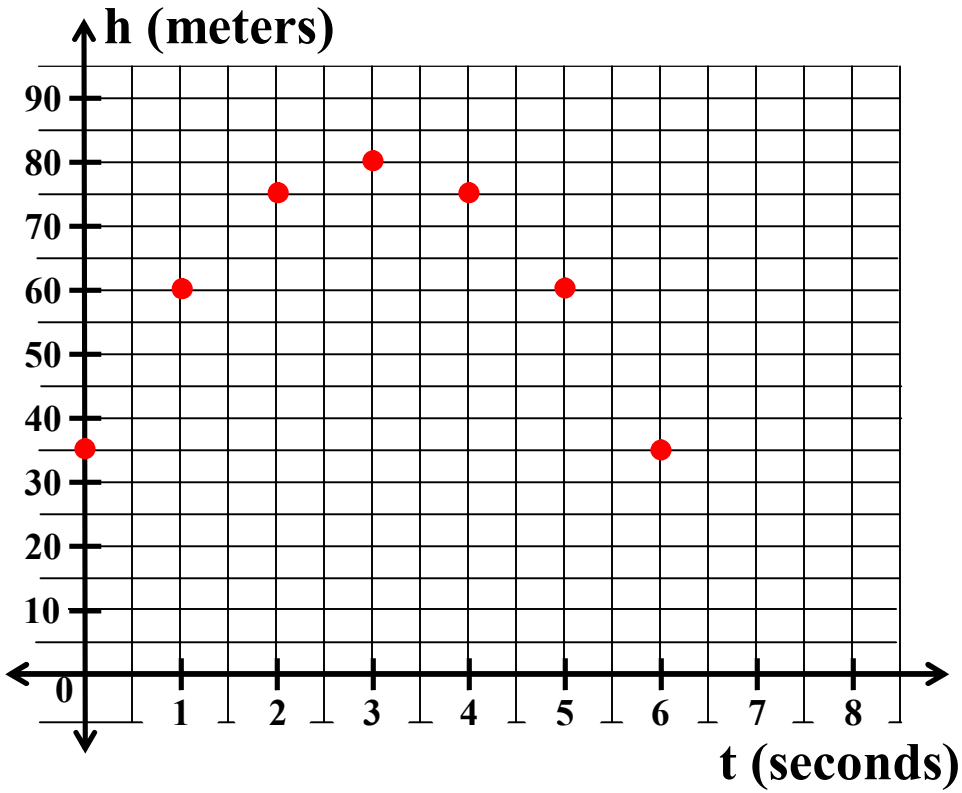
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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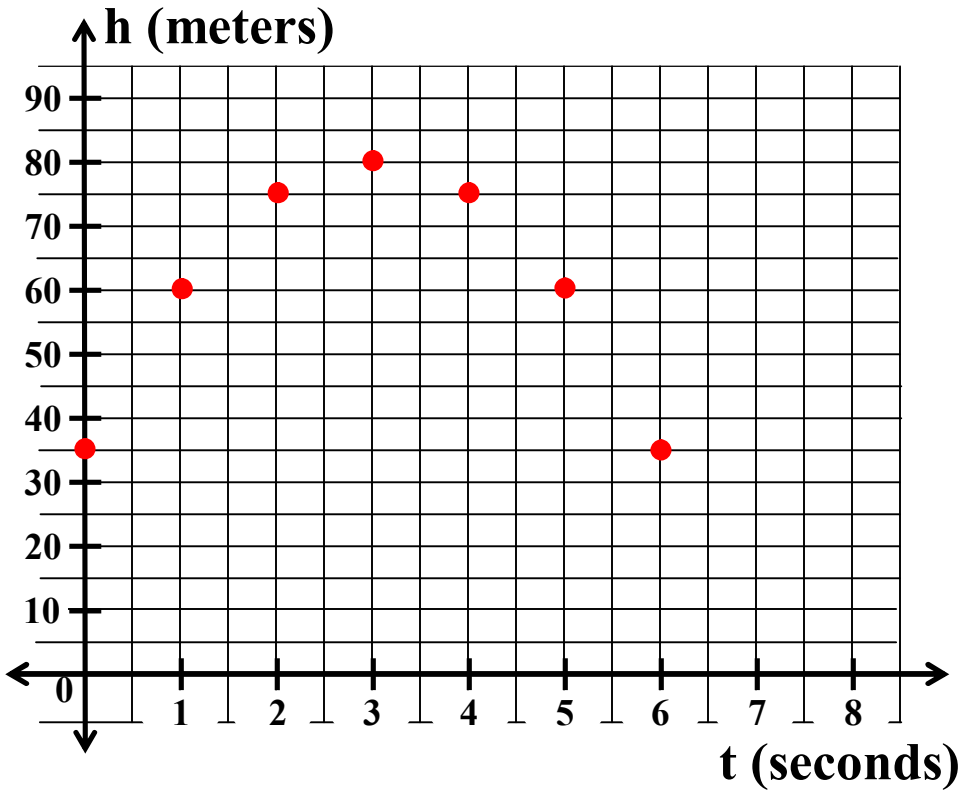
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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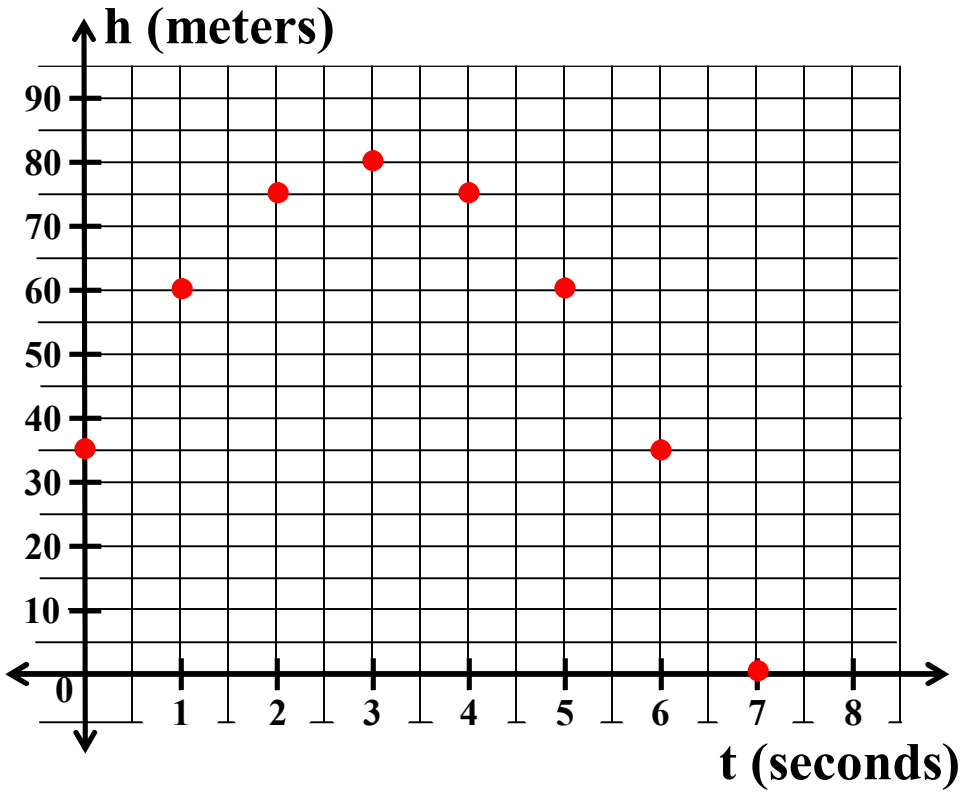
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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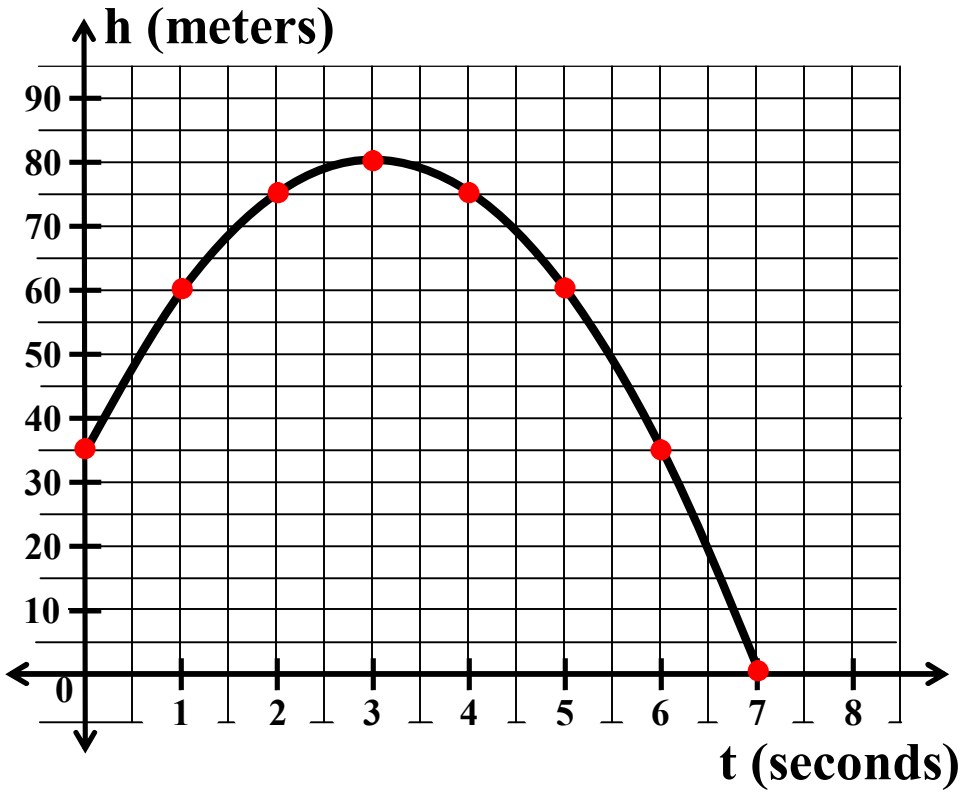
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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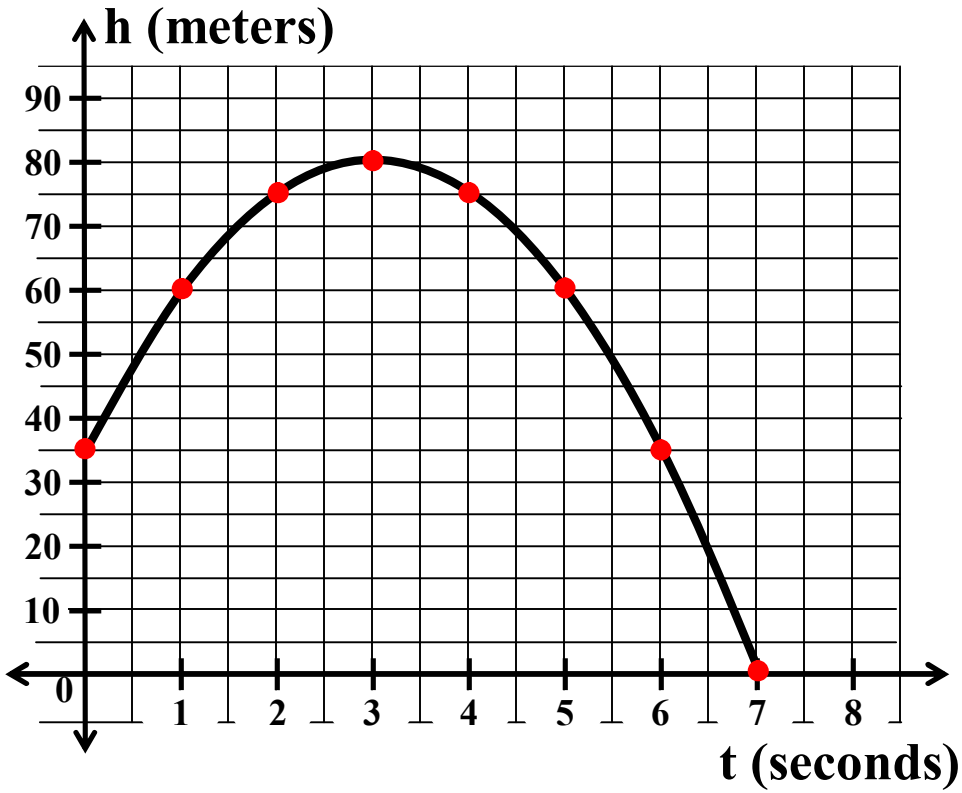
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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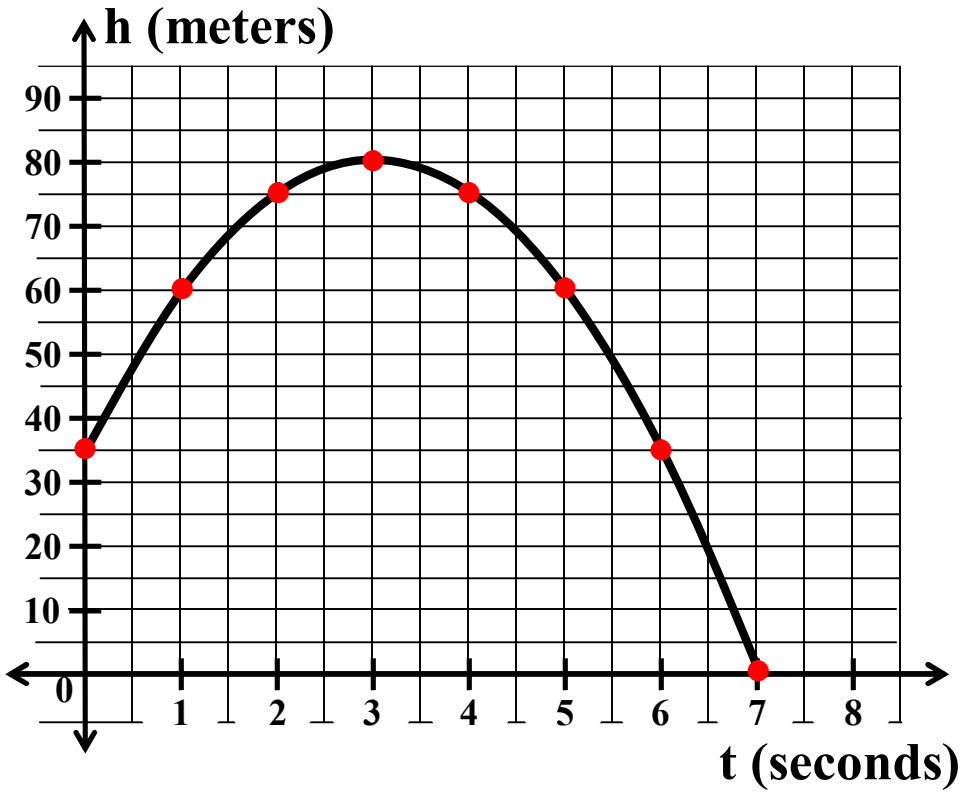
$$\mathbf{V = f'(t) = \underline{-10t + 30}}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

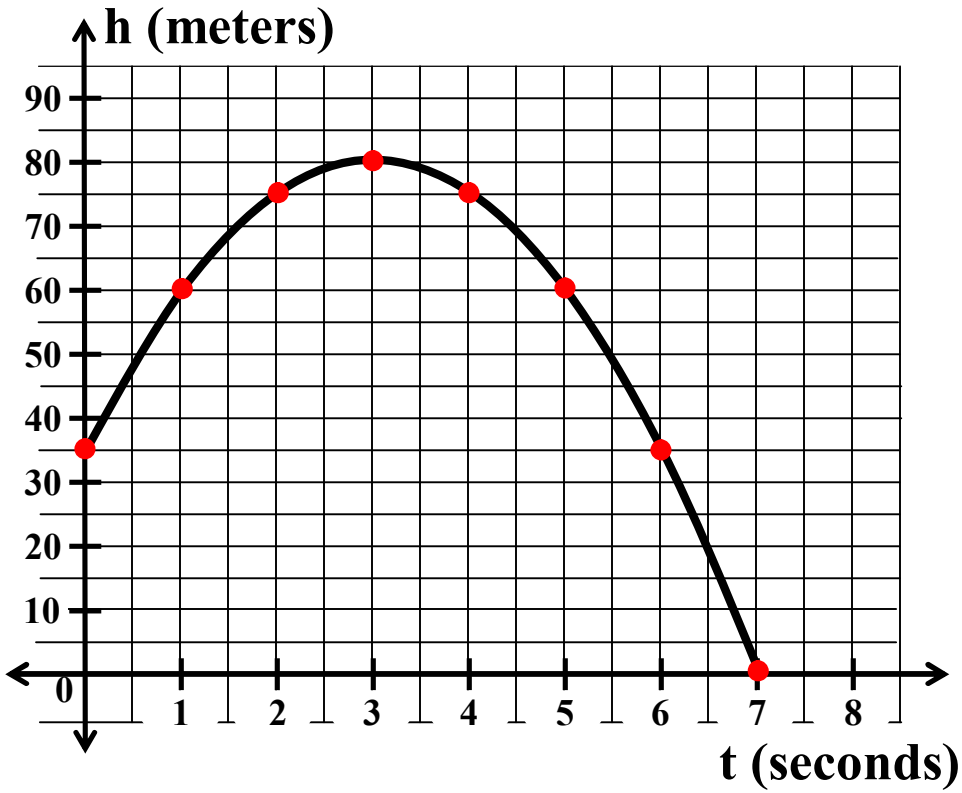
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = \underline{-10t + 30}}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

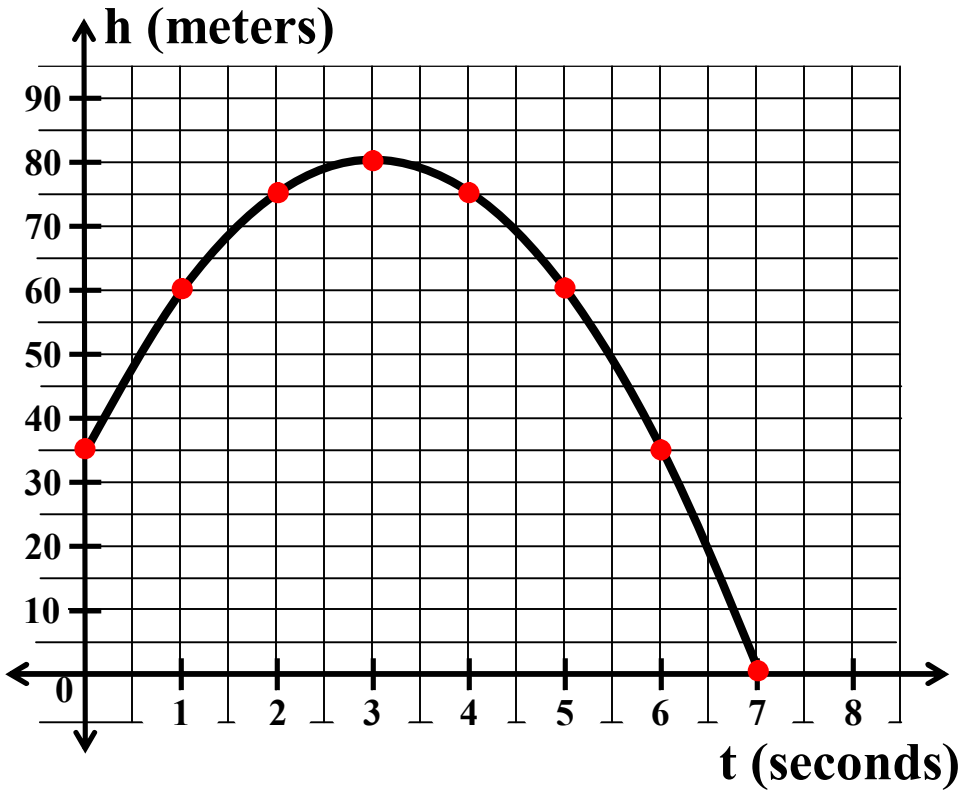
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = \underline{-10t + 30}}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

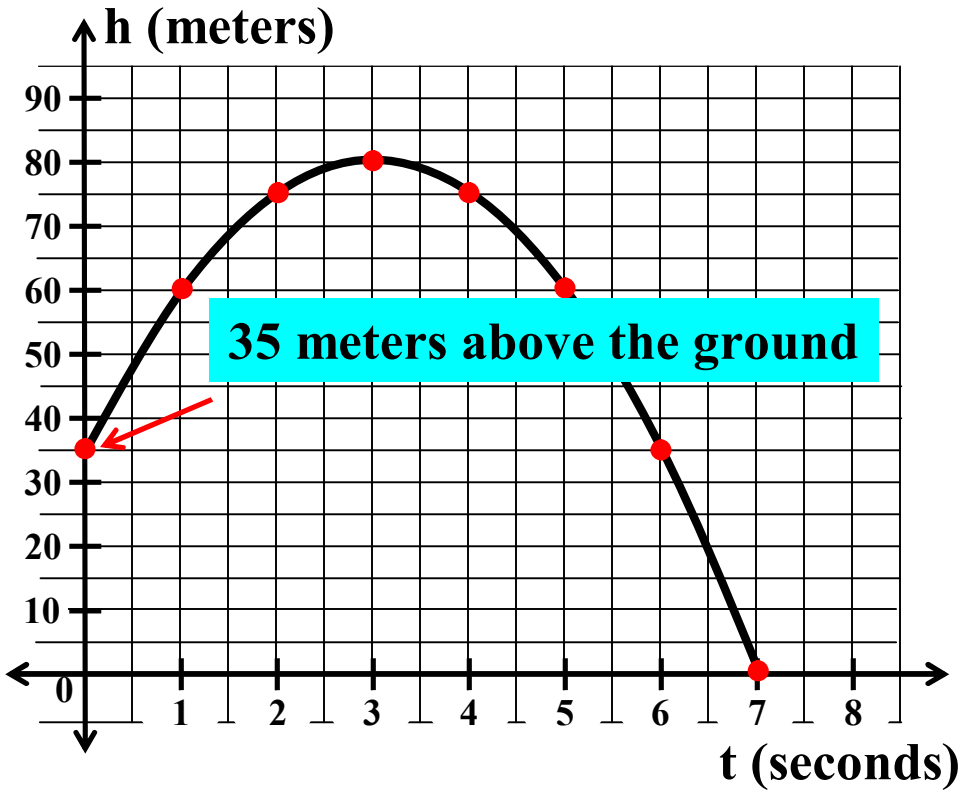
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = -10t + 30$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

1. Express the velocity of the ball as a function of t.

$$V = f'(t) = -10t + 30$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

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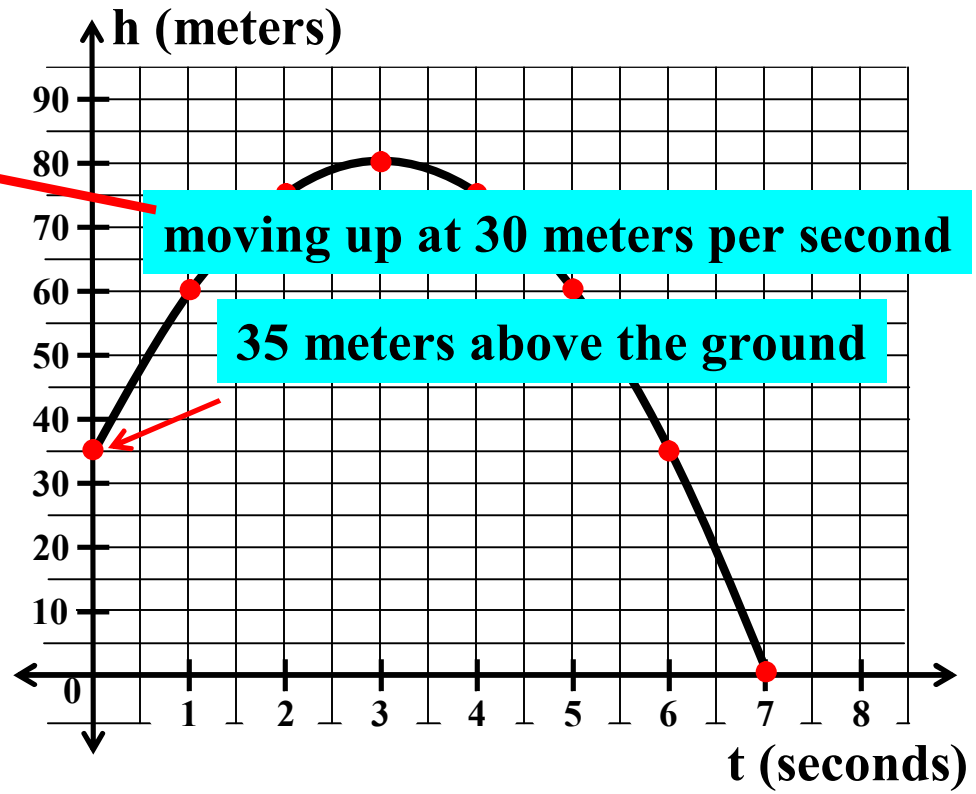


Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

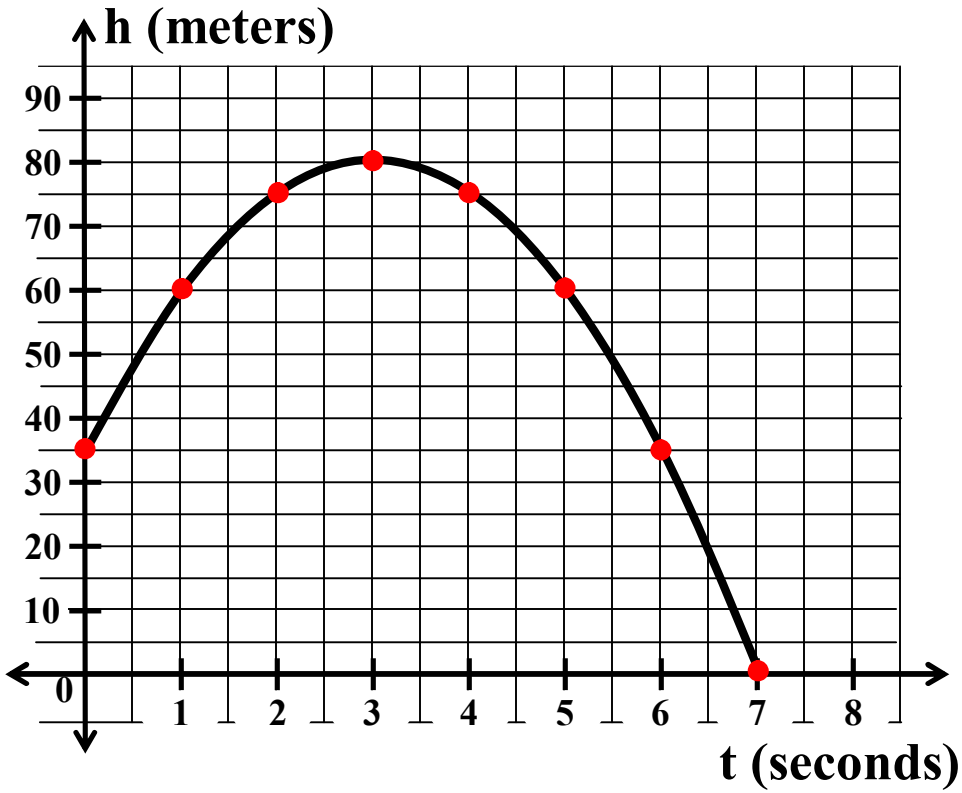
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = -10t + 30$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

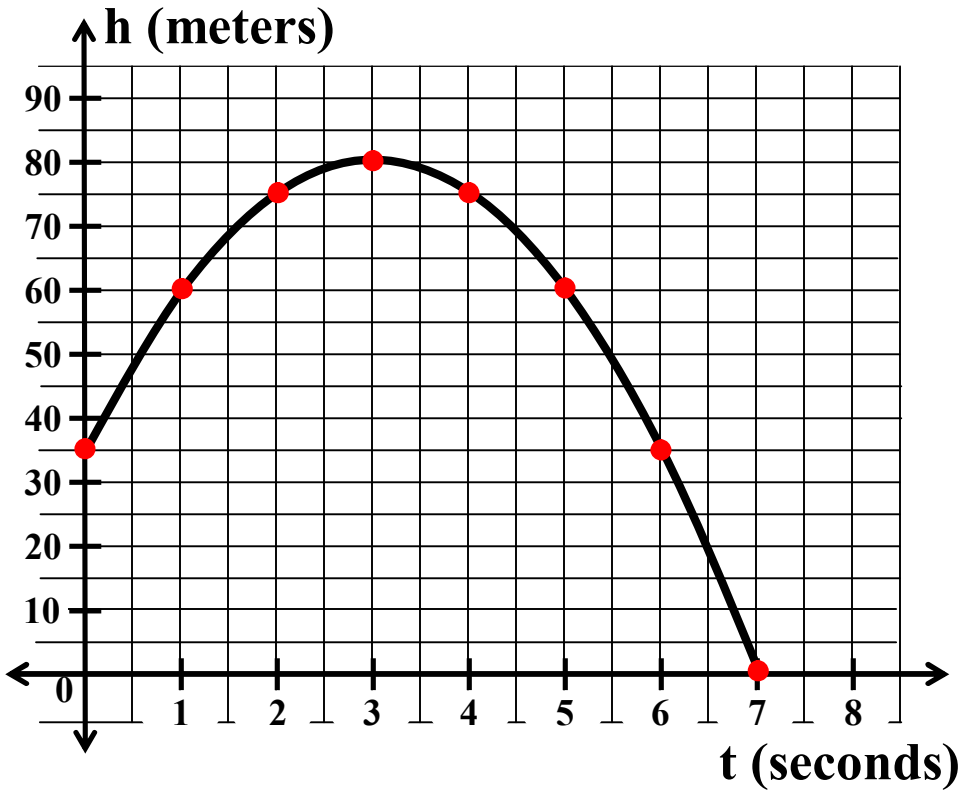
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = -10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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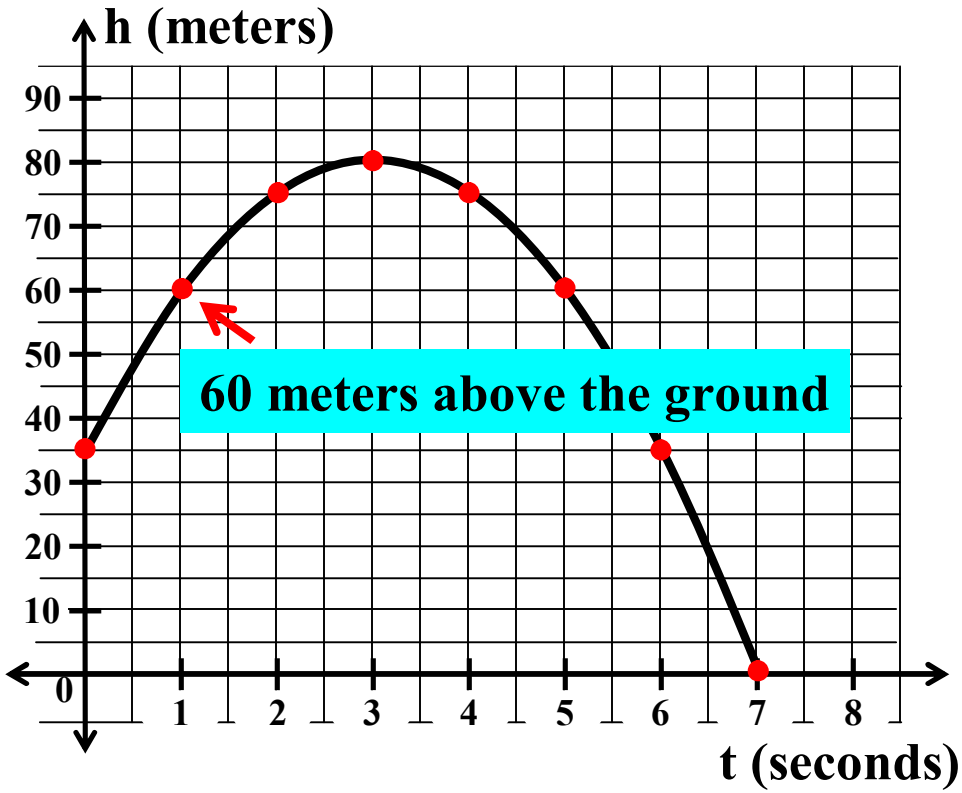
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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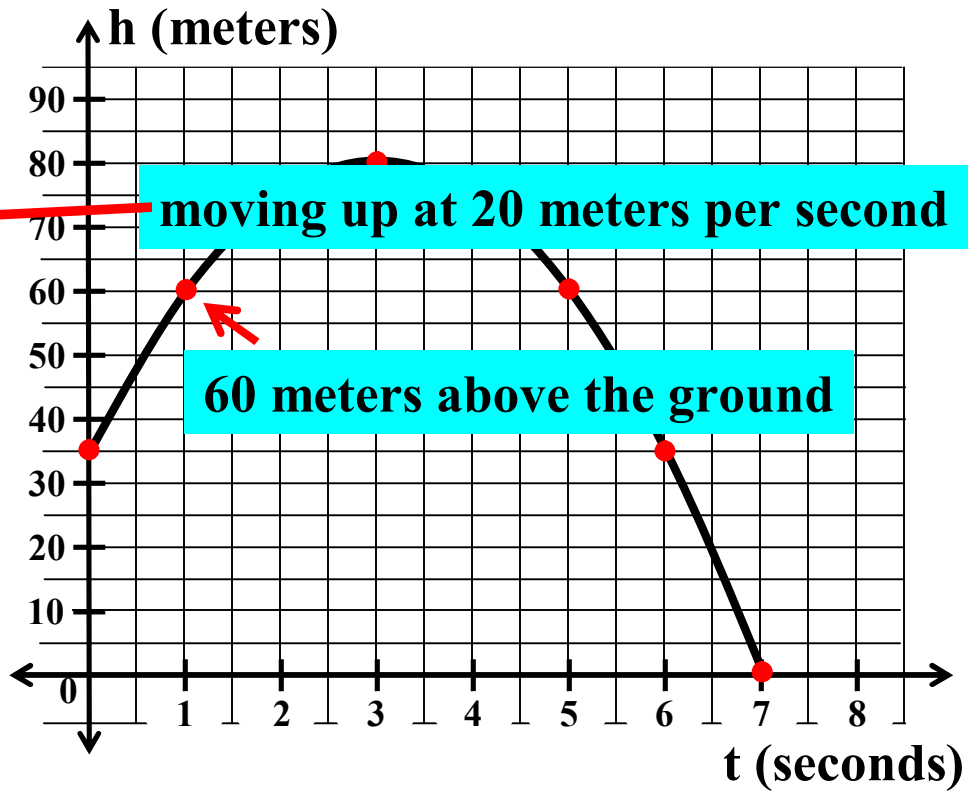
3	80	
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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5	60	
6	35	
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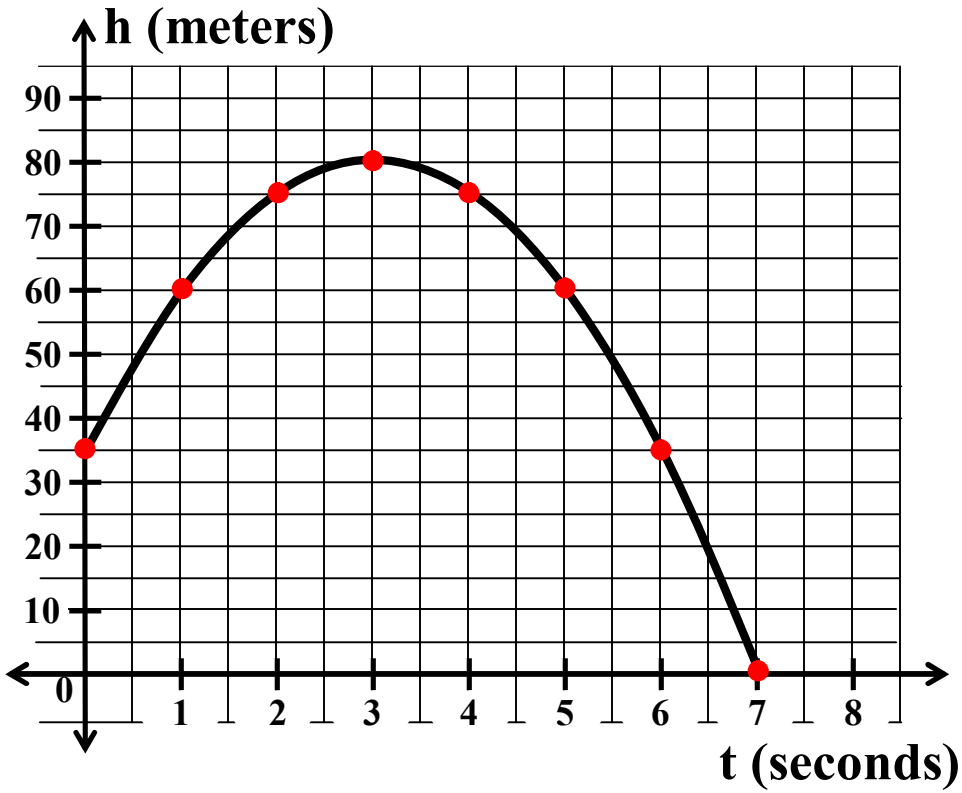

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4	75	
5	60	
6	35	
7	0	

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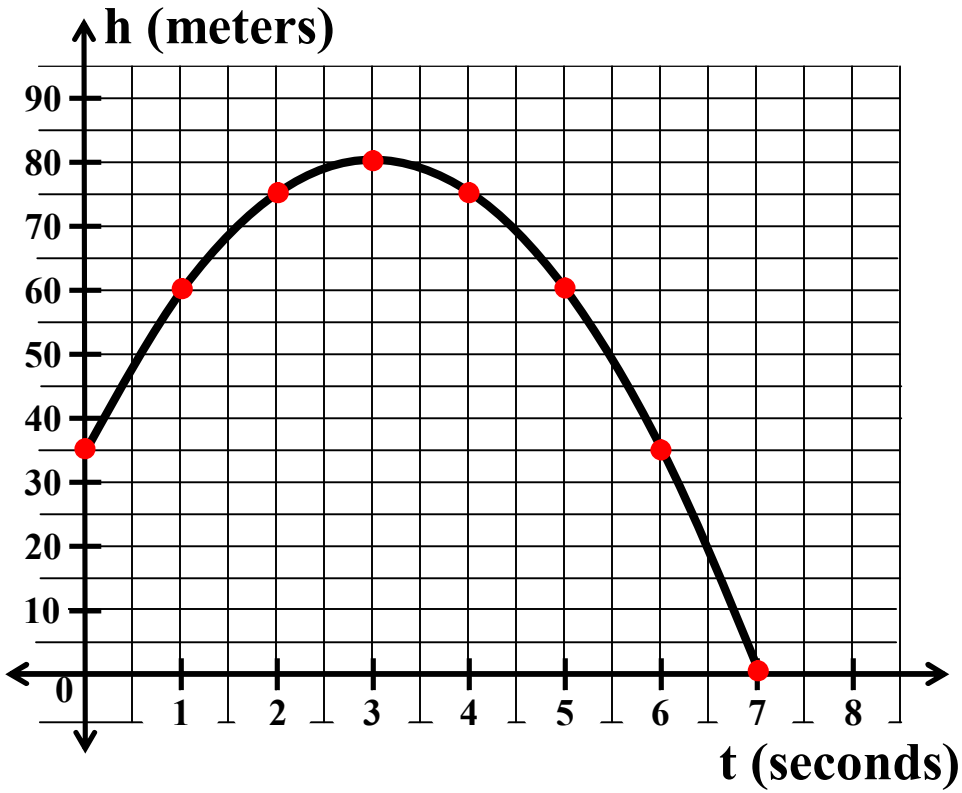

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4	75	
5	60	
6	35	
7	0	

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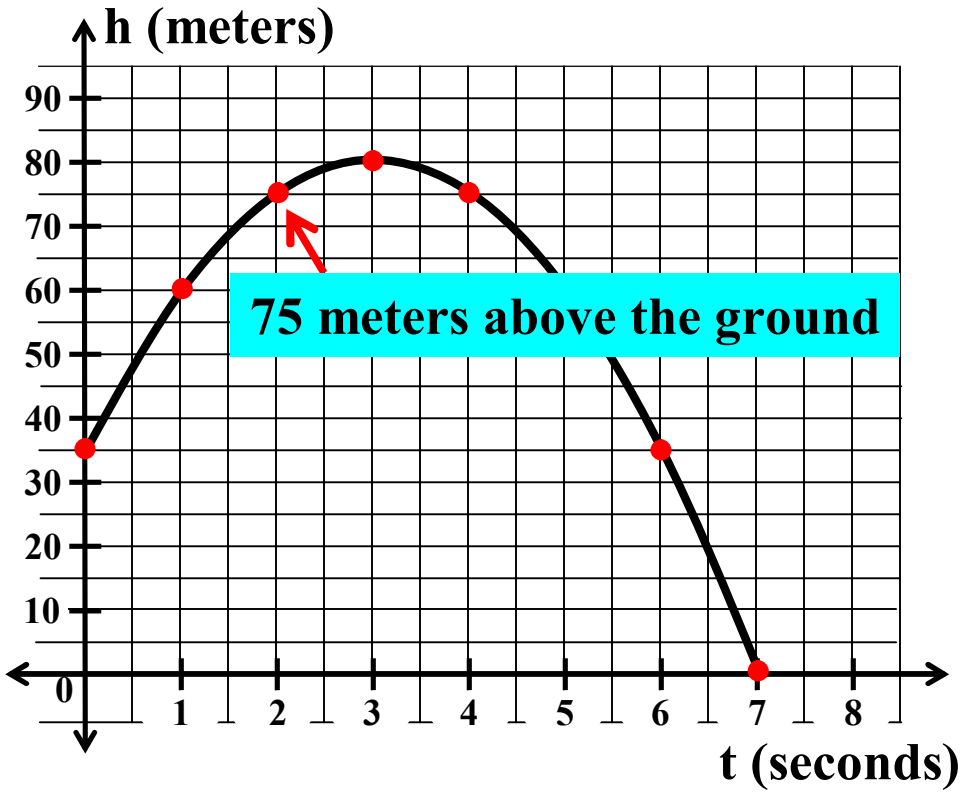

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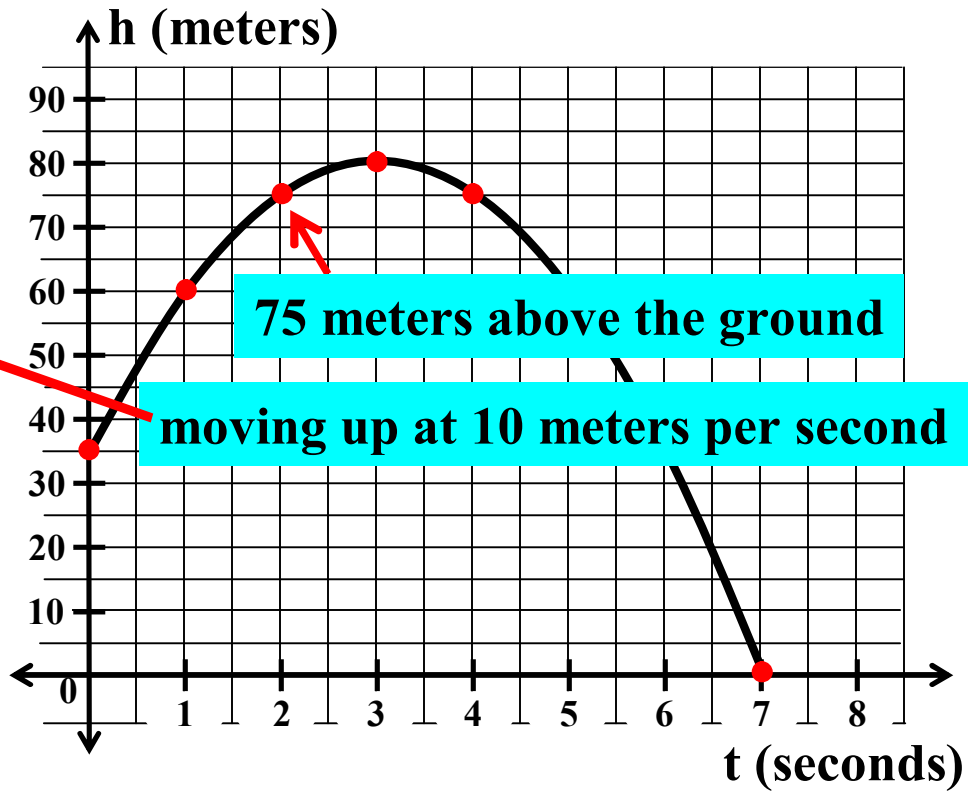
4	75	
5	60	
6	35	
7	0	

3. Graph function f below.



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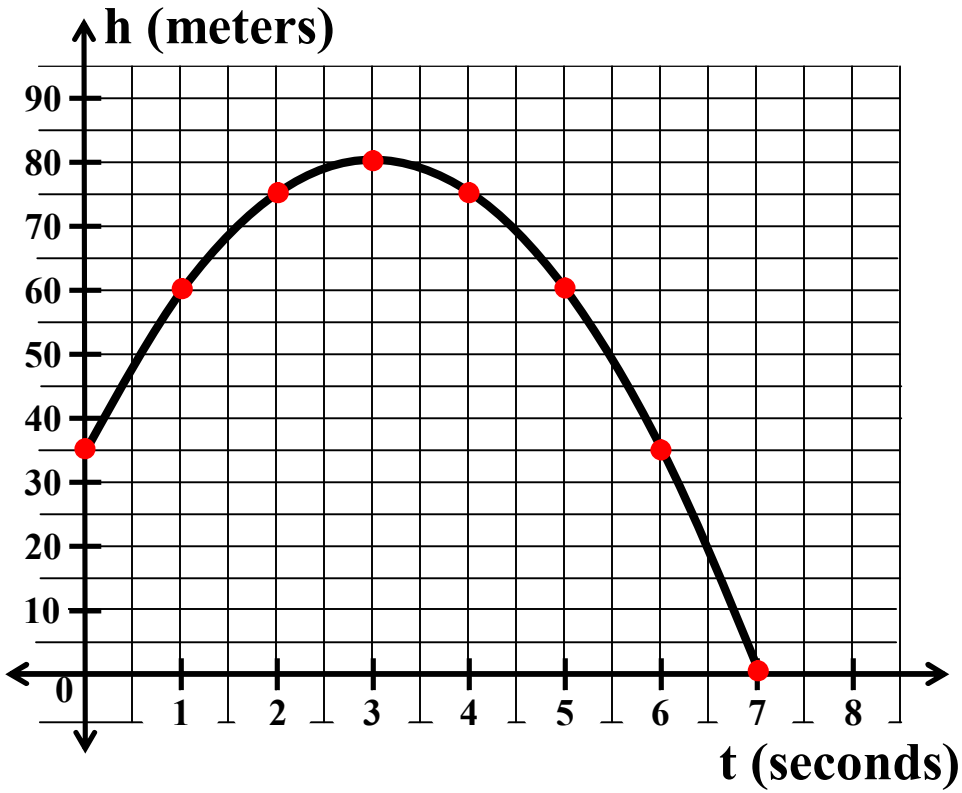

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4	75	
5	60	
6	35	
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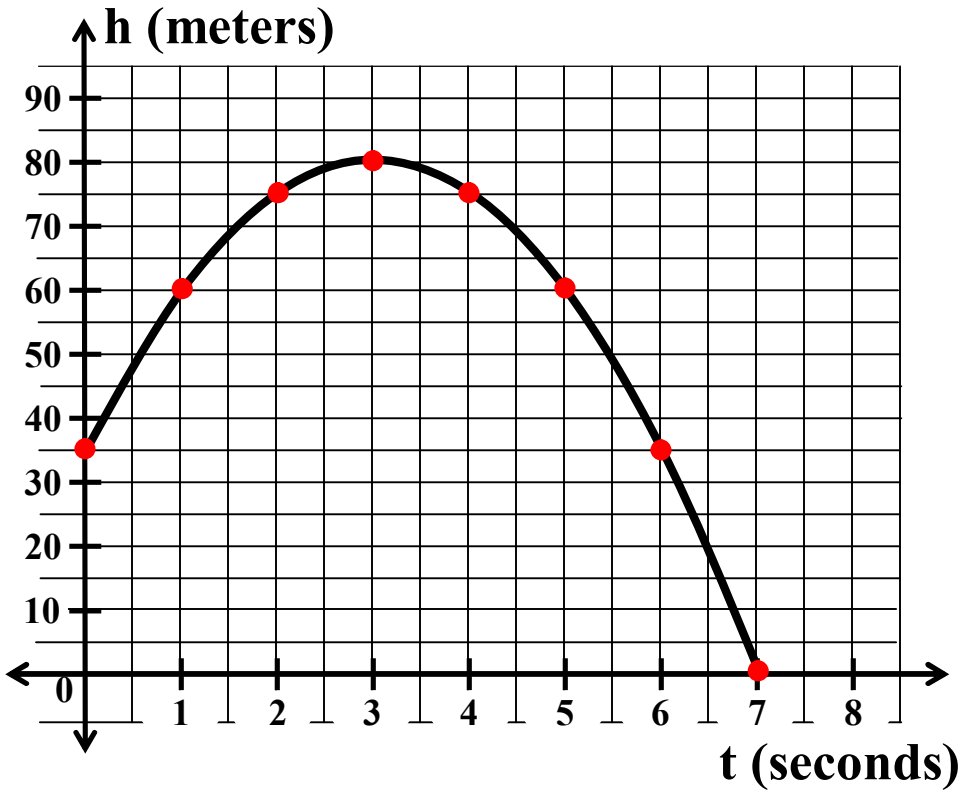

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4	75	
5	60	
6	35	
7	0	

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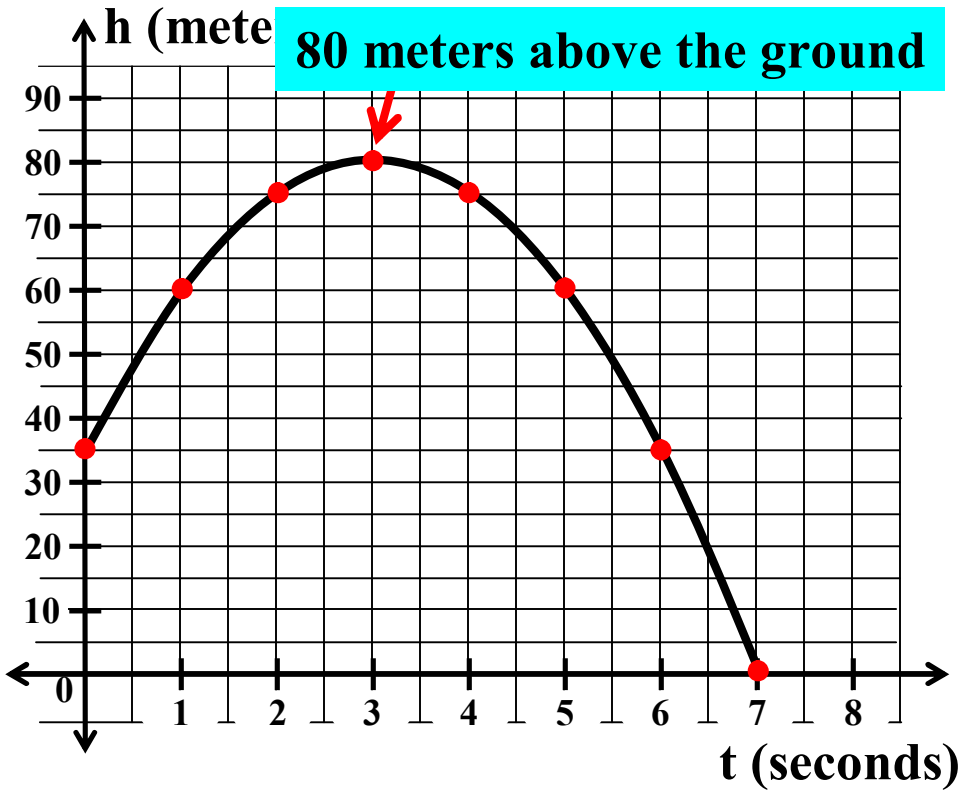

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4	75	
5	60	
6	35	
7	0	

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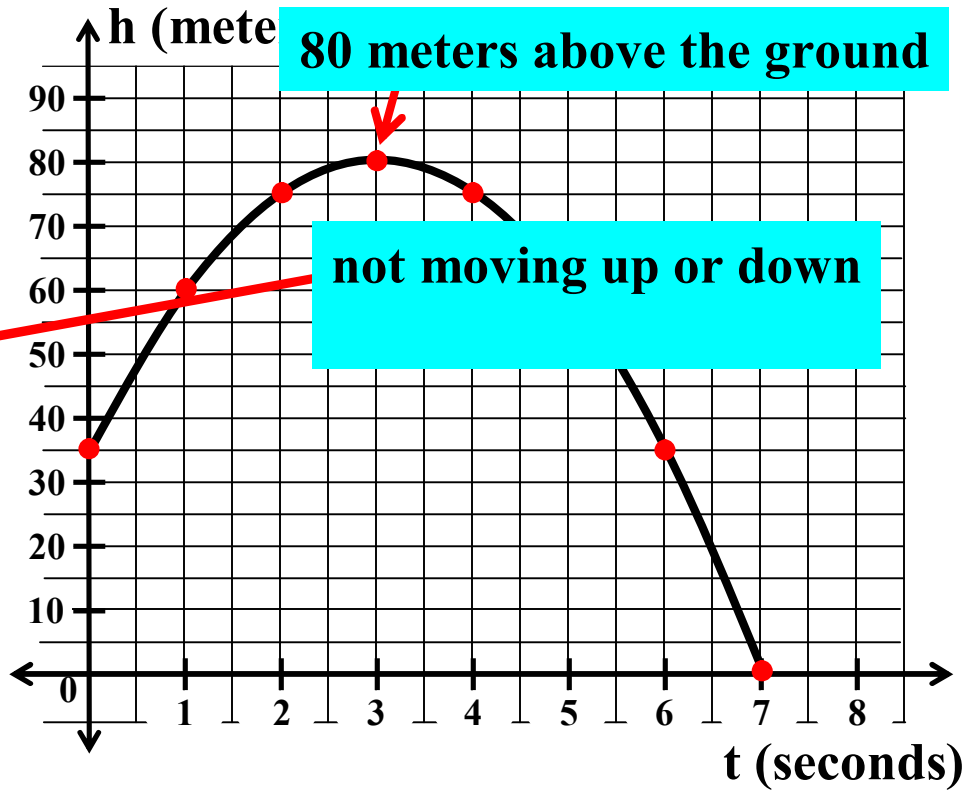

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3	80	0
4	75	
5	60	
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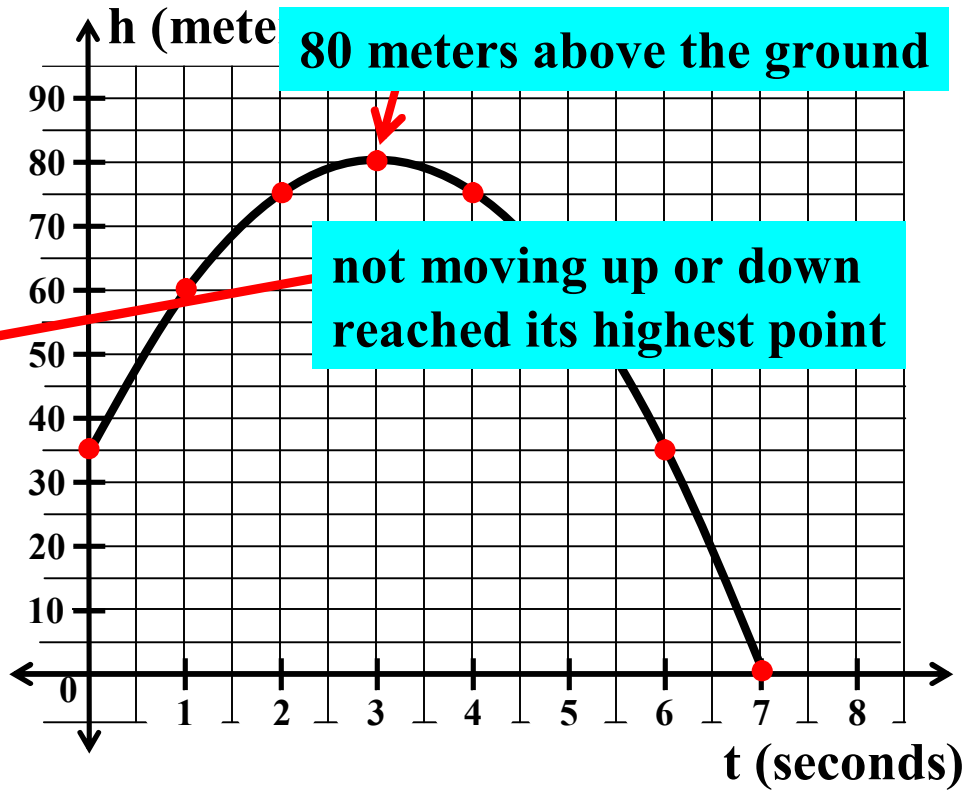

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5	60	
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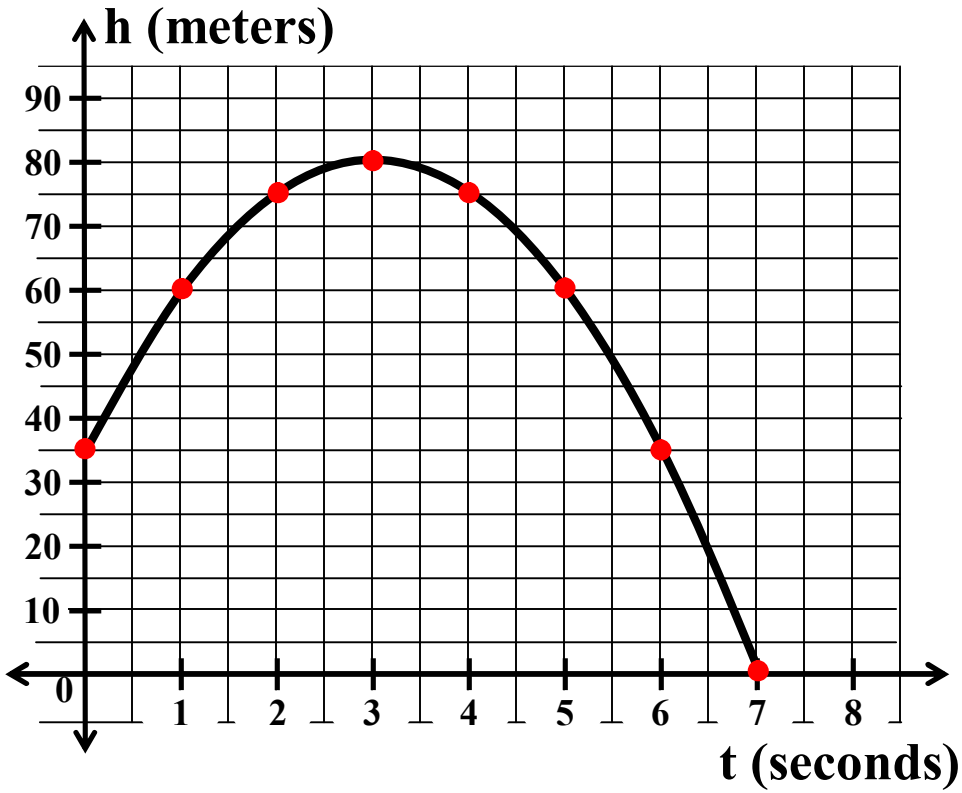

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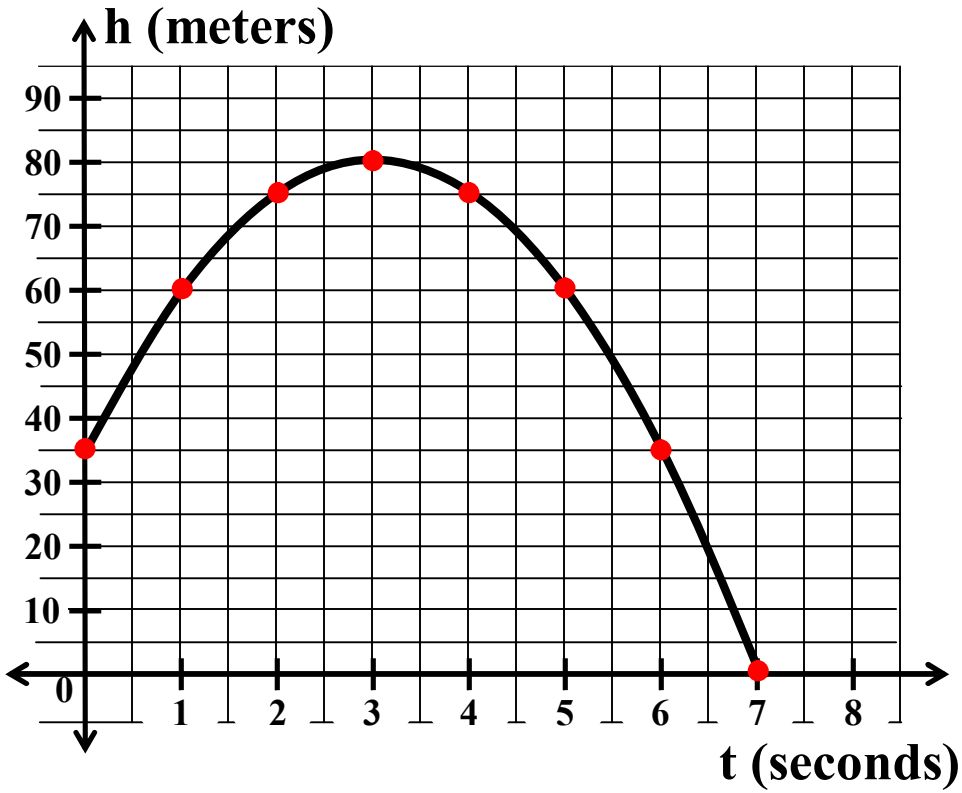
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	
6	35	
7	0	

3. Graph function f below.



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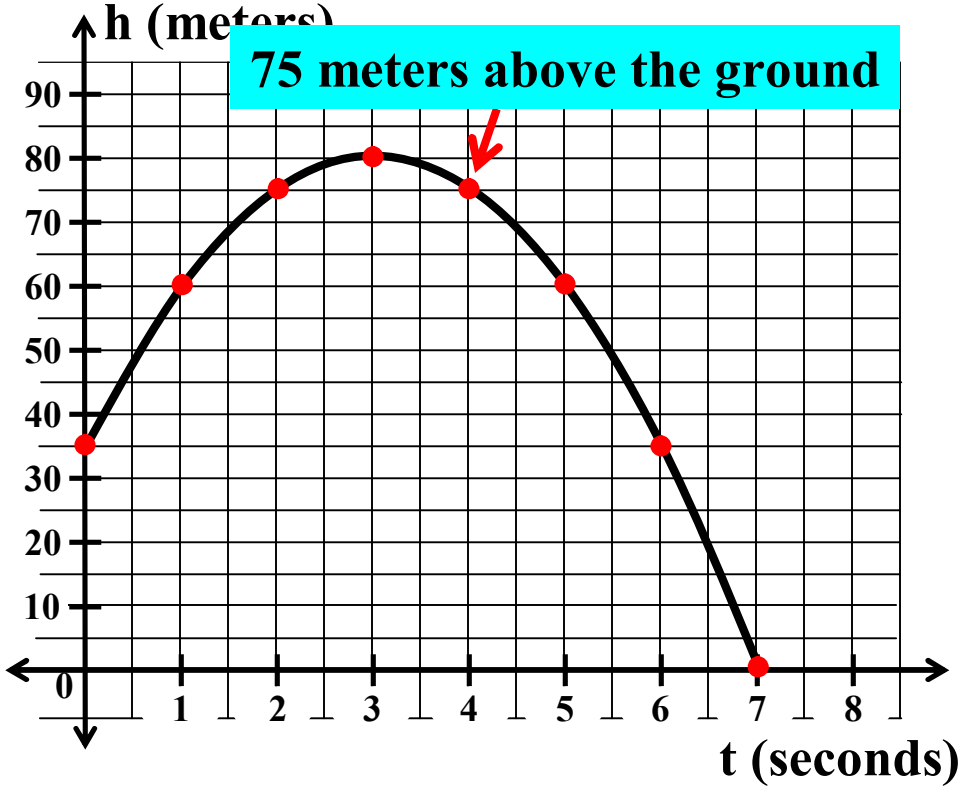

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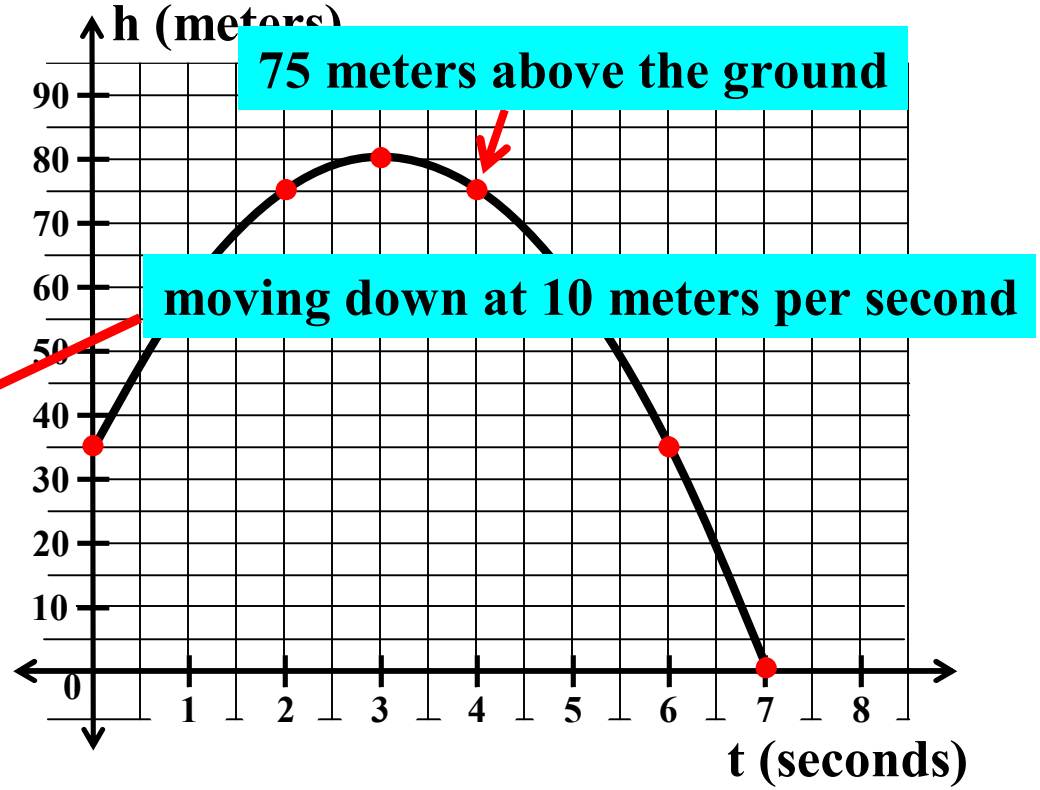

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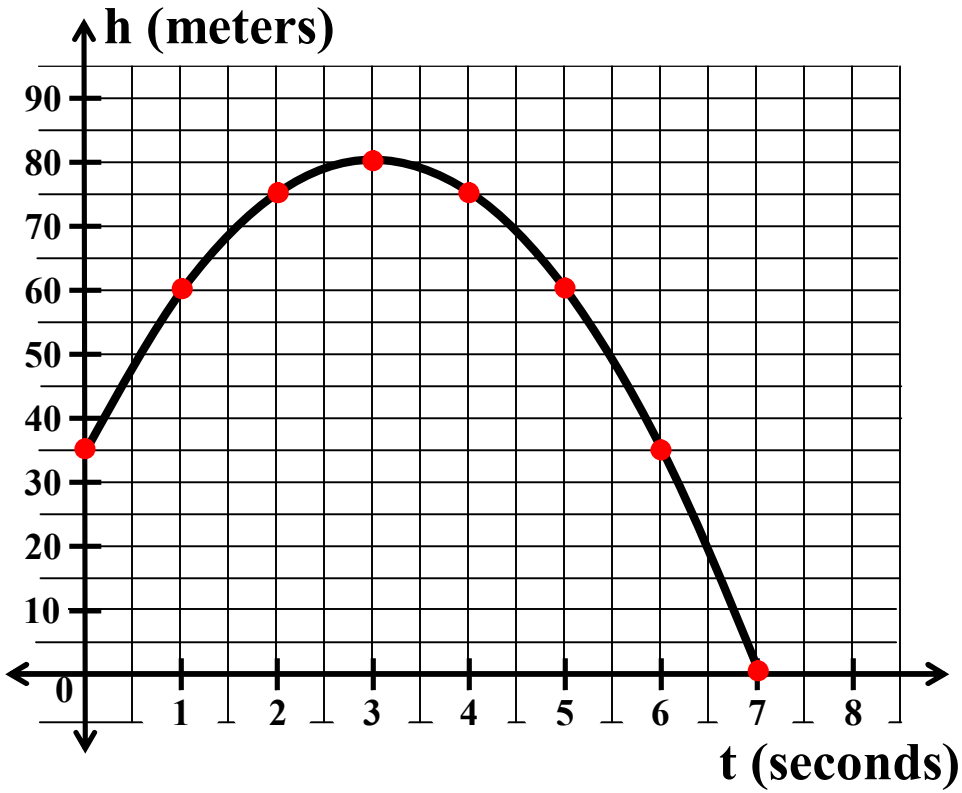

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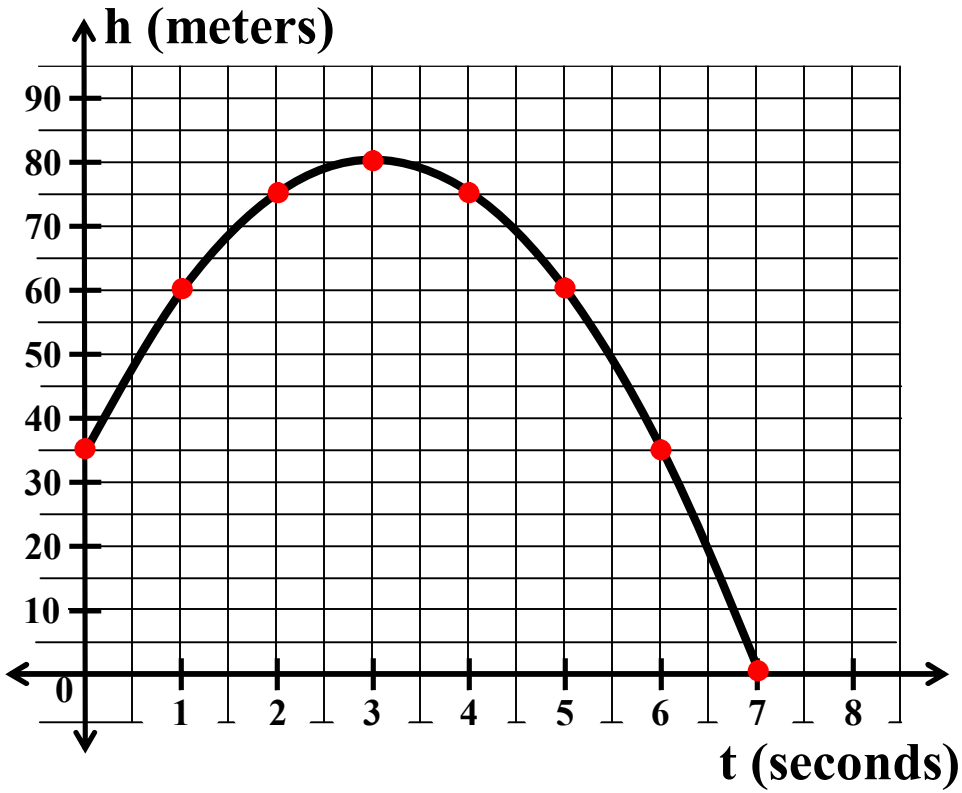

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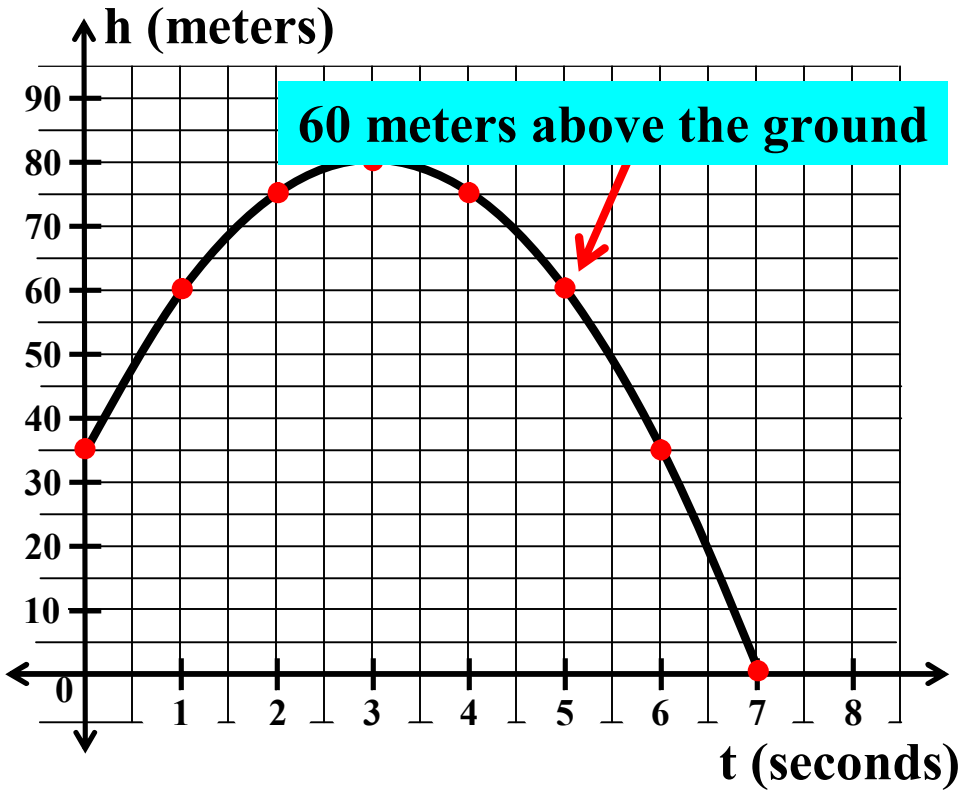

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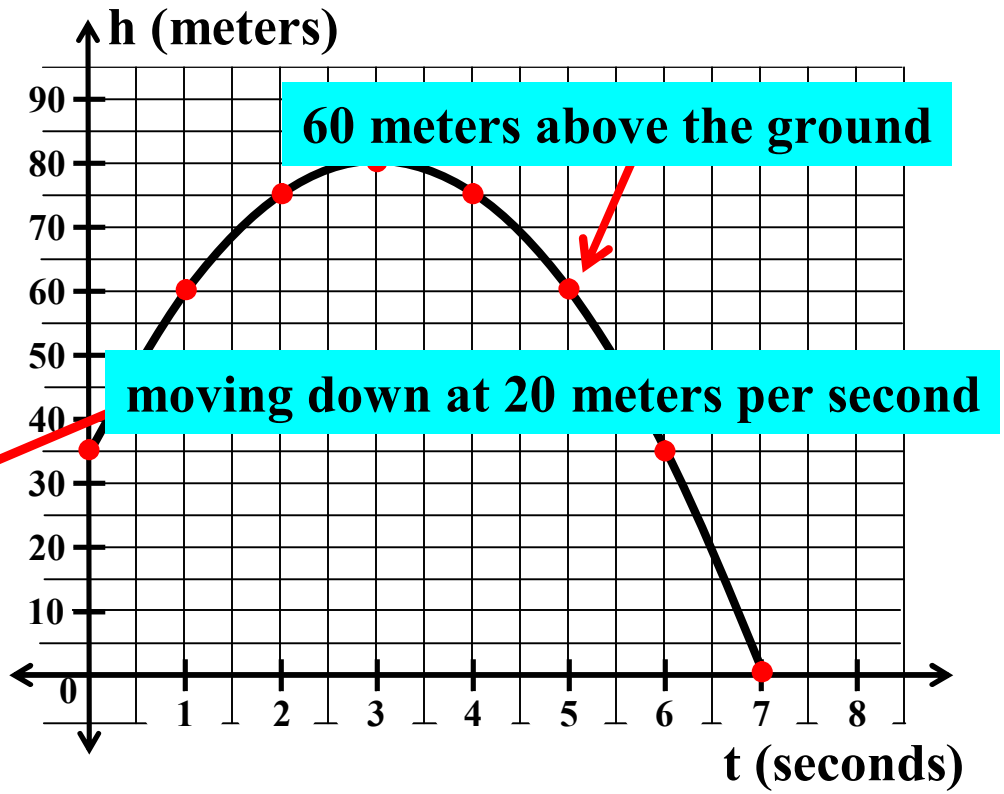


Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

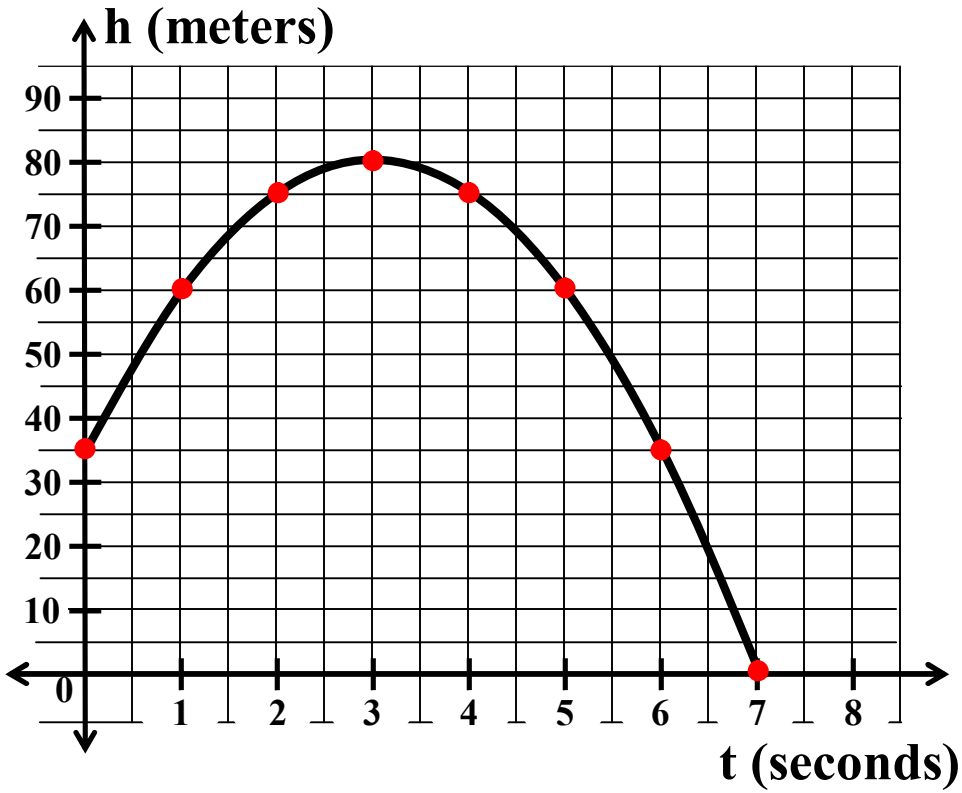
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = -10t + 30$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

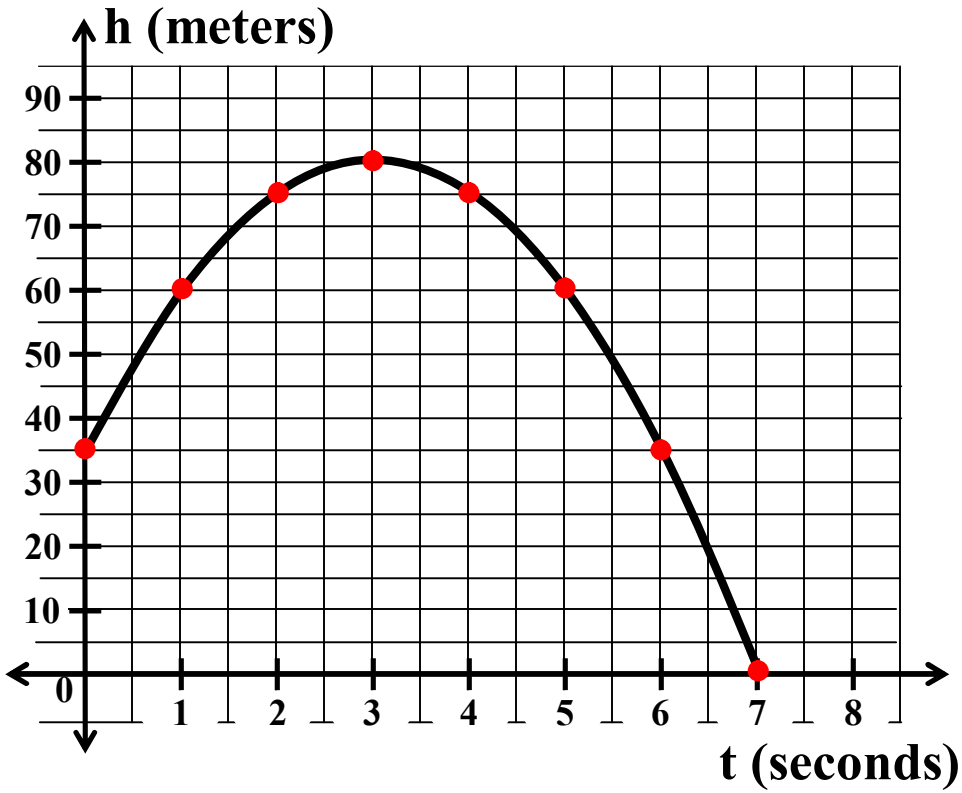
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = \underline{-10t + 30}}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

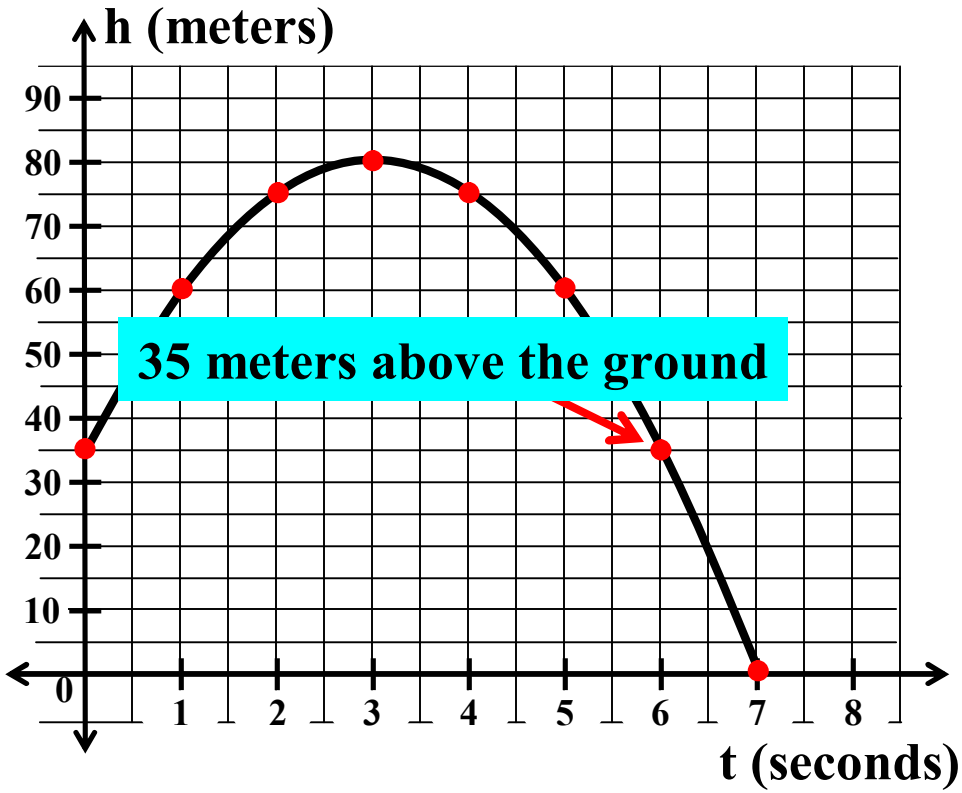
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = -10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

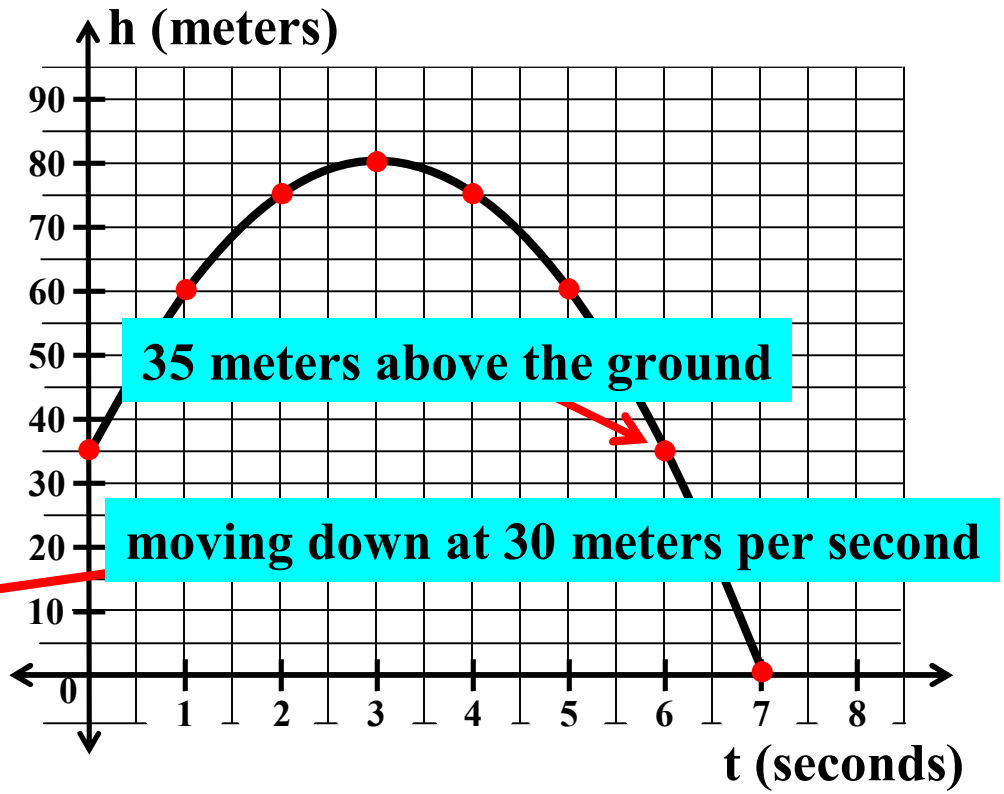
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = \underline{-10t + 30}}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

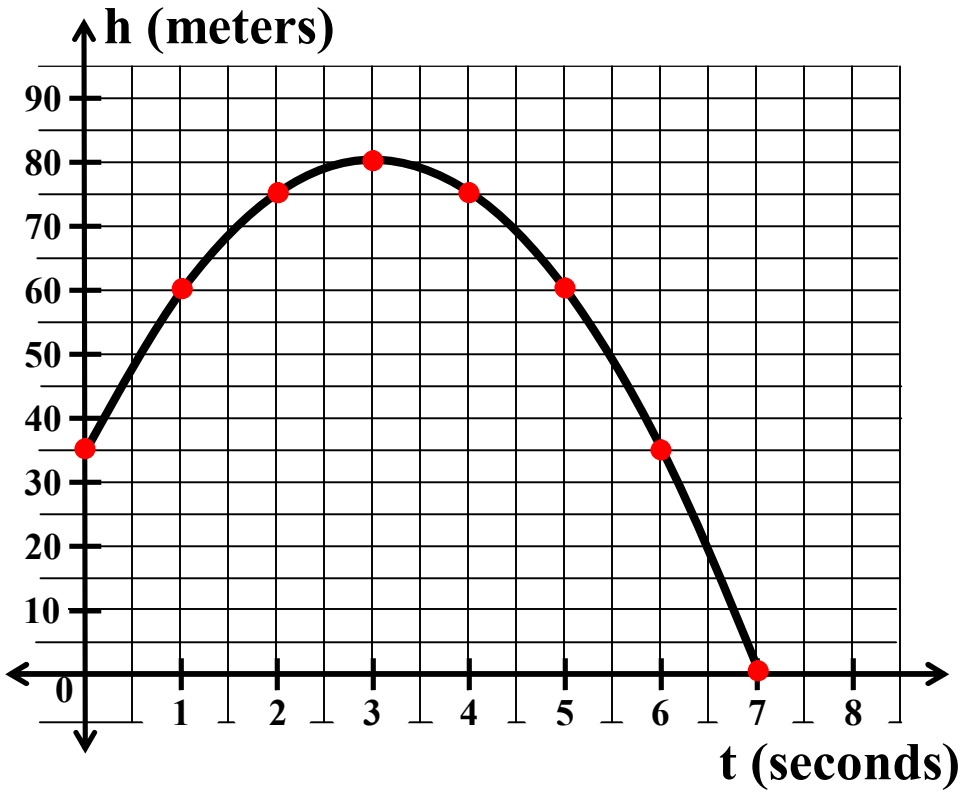
1. Express the velocity of the ball as a function of t.

$$\mathbf{V = f'(t) = -10t + 30}$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

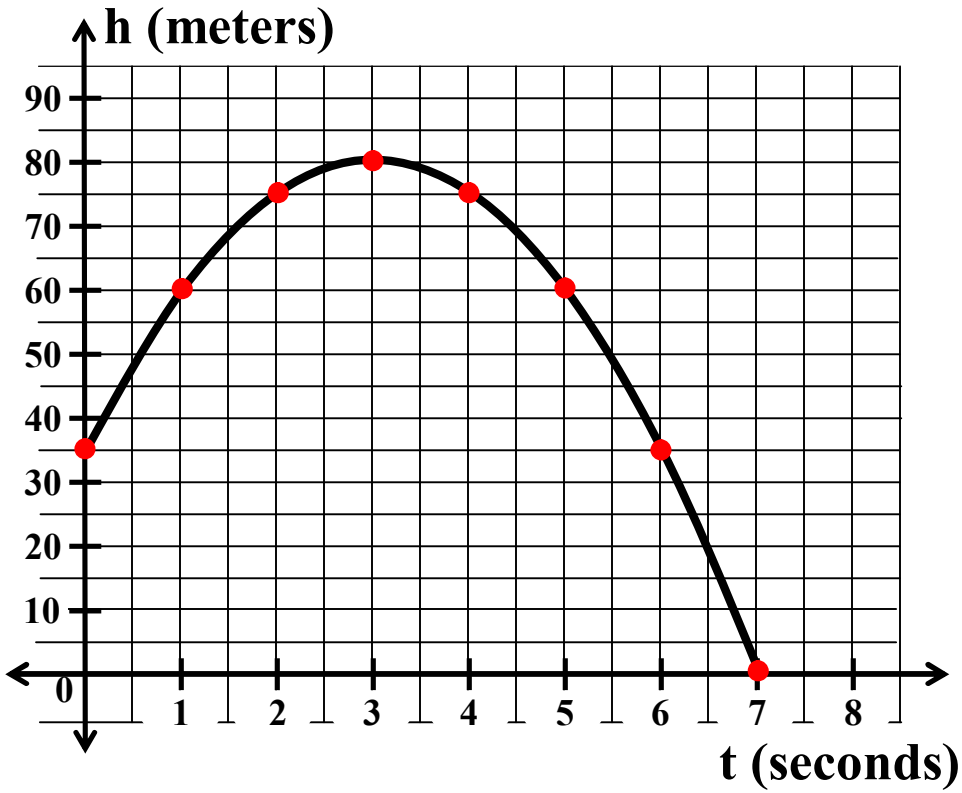
1. Express the velocity of the ball as a function of t.

$$V = f'(t) = -10t + 30$$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



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A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

1. Express the velocity of the ball as a function of t.

$$V = f'(t) = -10t + 30$$

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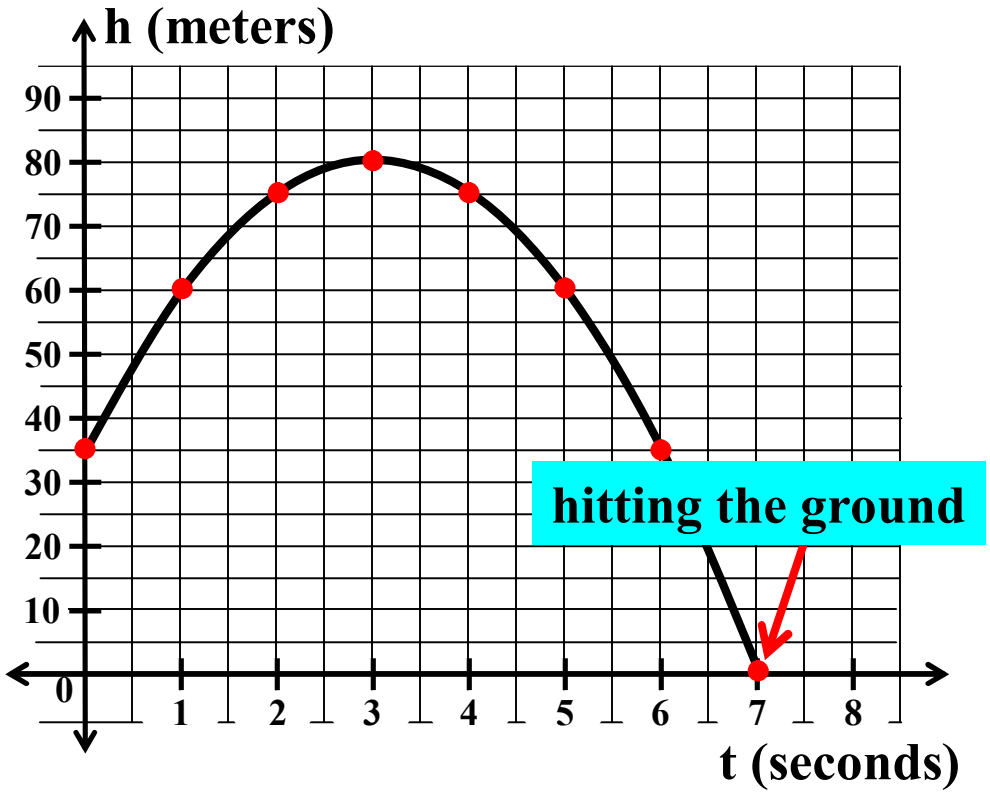
t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

A steel ball is propelled upward in such a way that its height, h, in meters, above the ground after t seconds is given by the function $\mathbf{h = f(t) = -5t^2 + 30t + 35}$.

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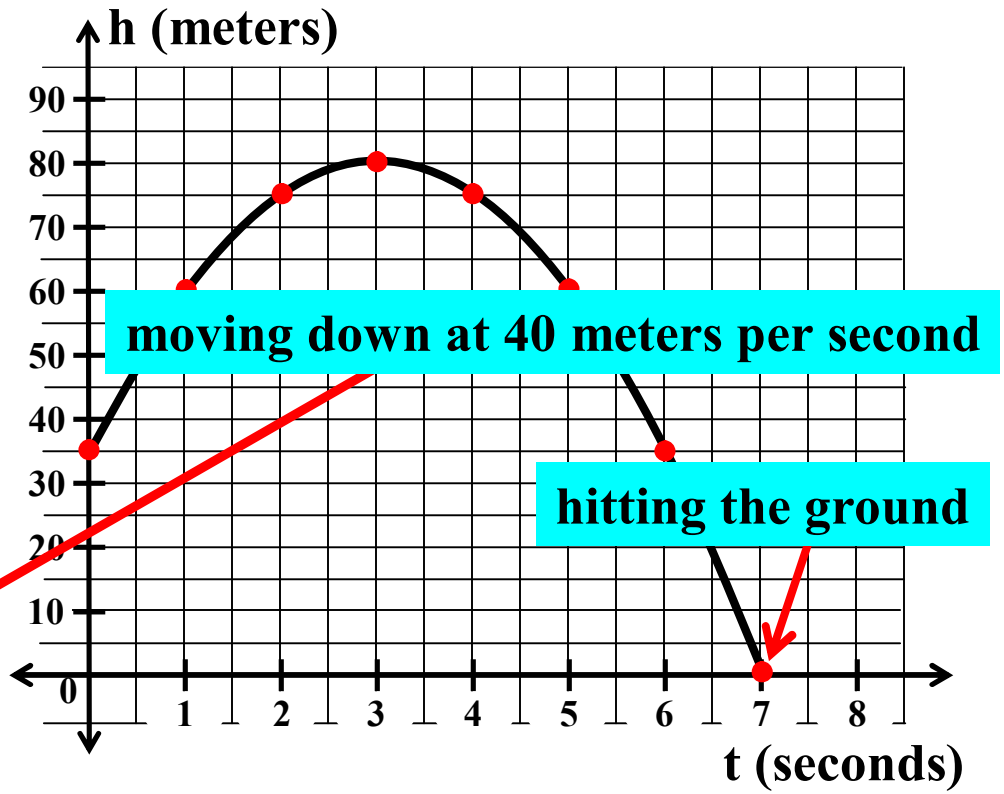
t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



Calculus Class Worksheet #5a Unit 1

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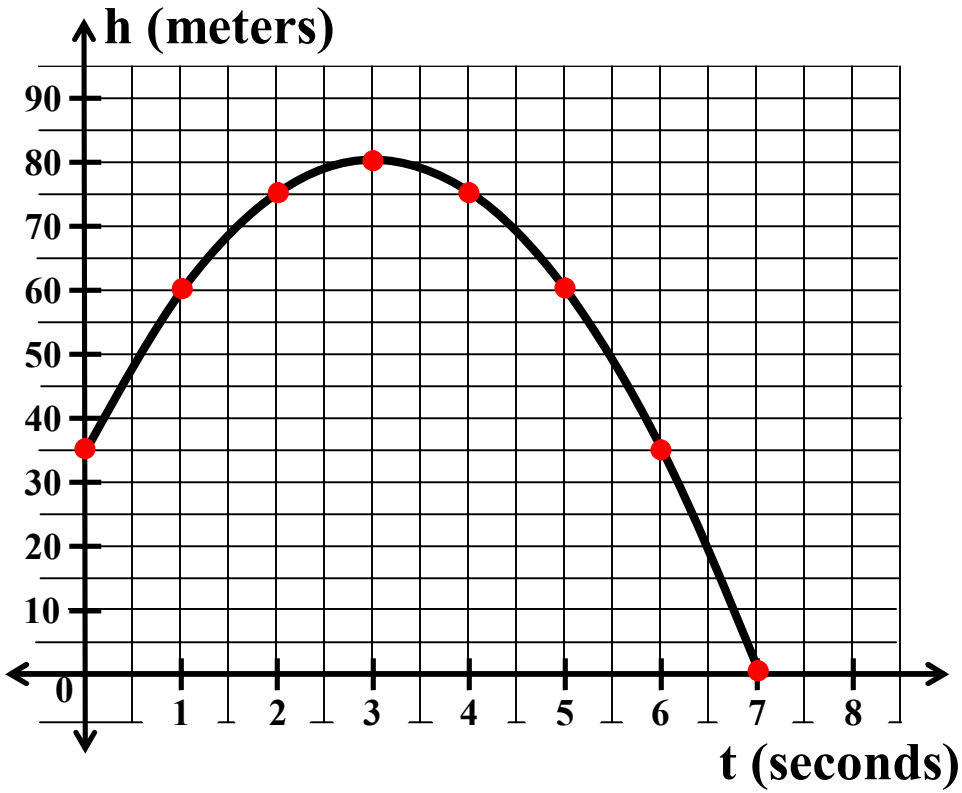
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



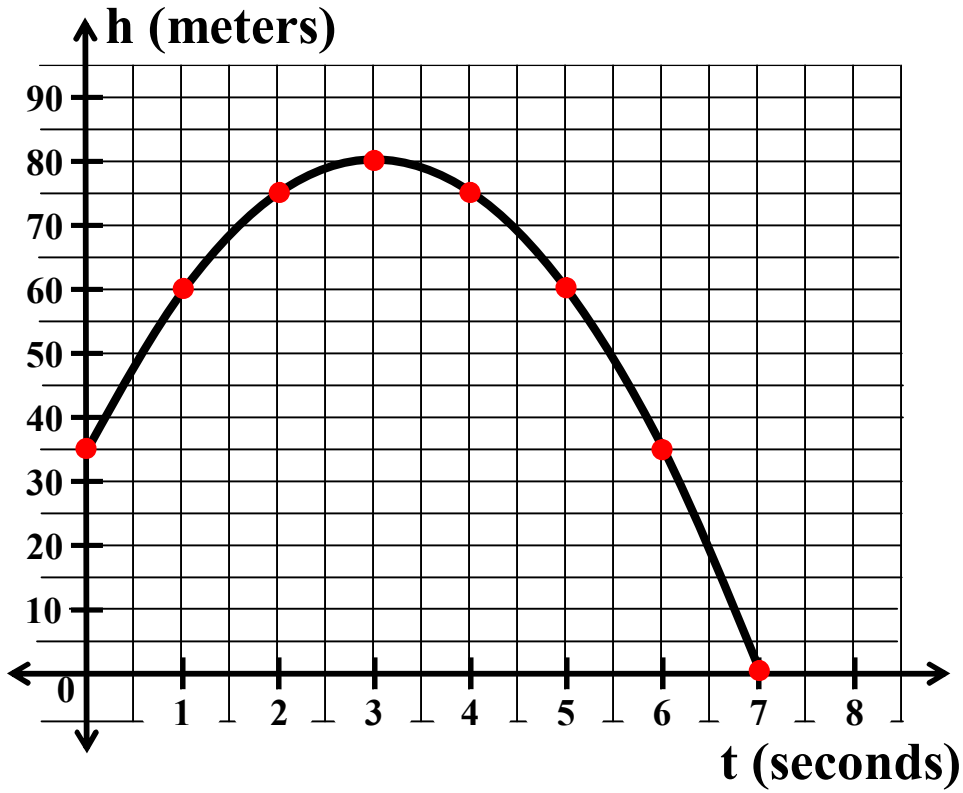
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



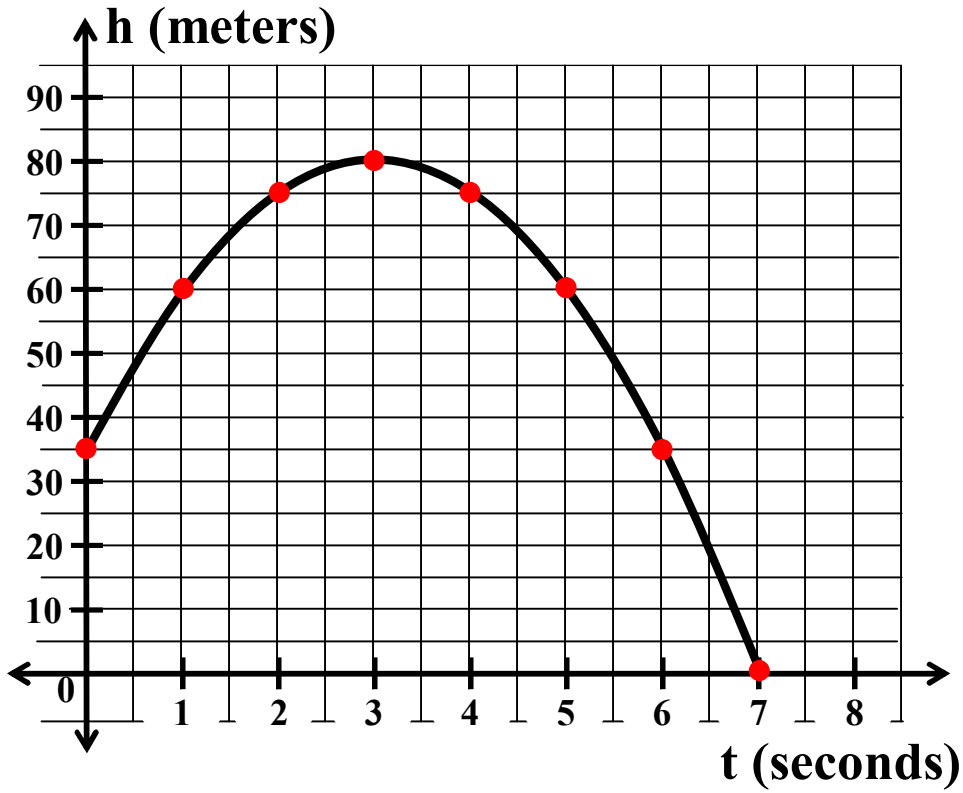
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds?

5. What is the velocity of the ball after 2 seconds?

Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
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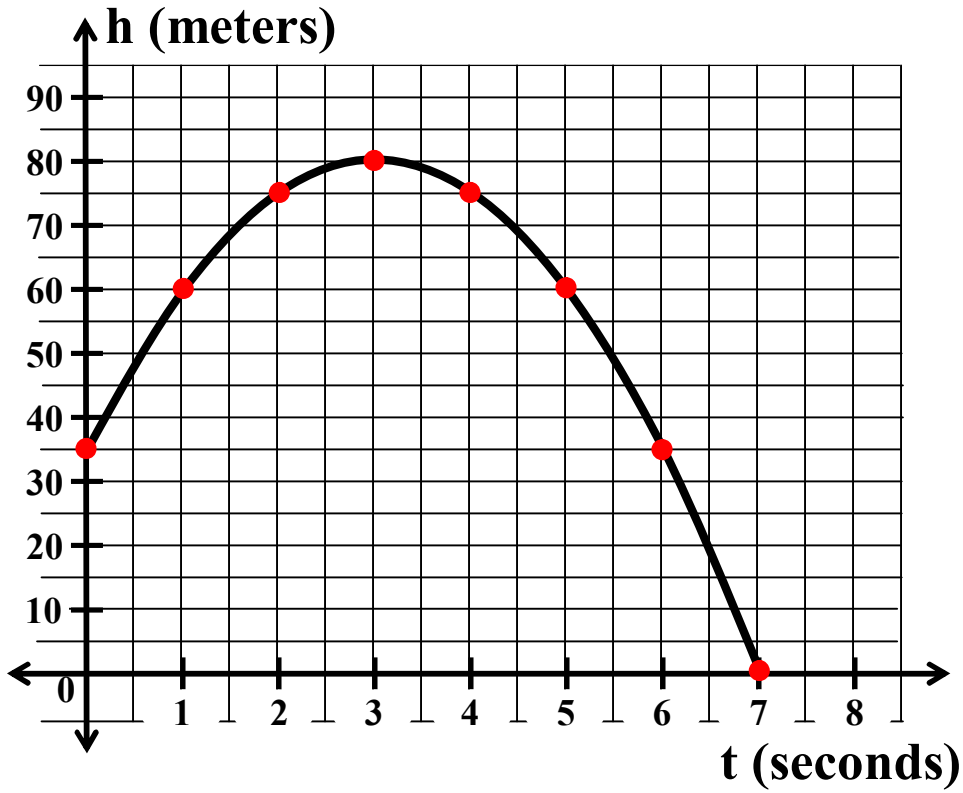
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



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Calculus Class Worksheet #5a Unit 1

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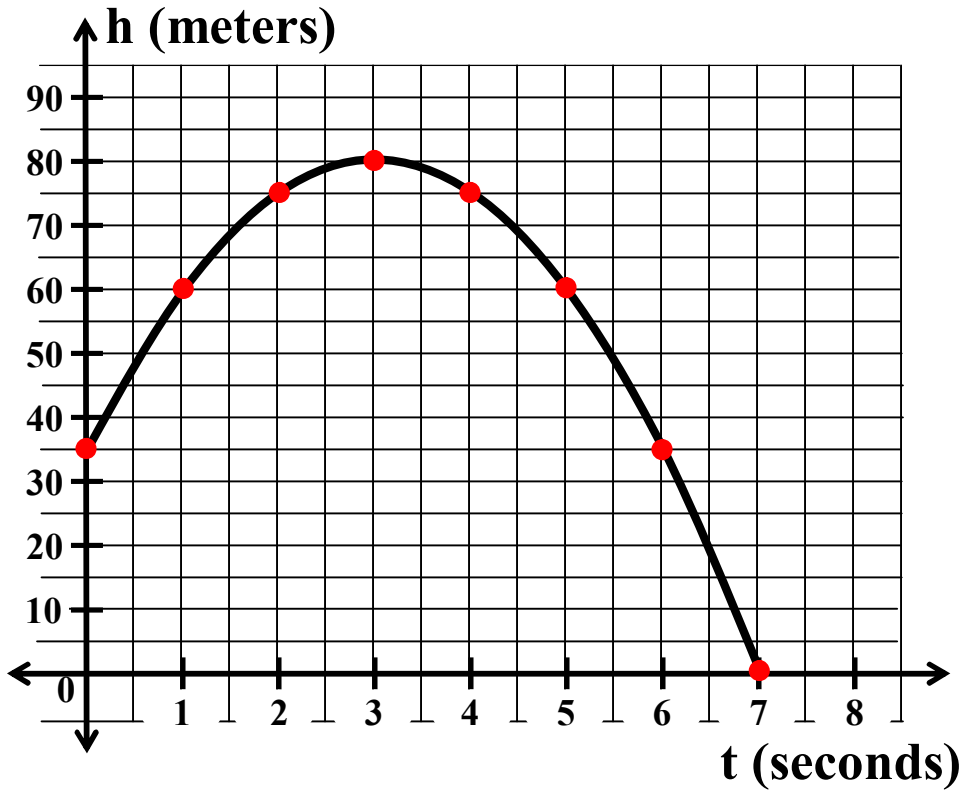
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
→ 2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds?

5. What is the velocity of the ball after 2 seconds?

Calculus Class Worksheet #5a Unit 1

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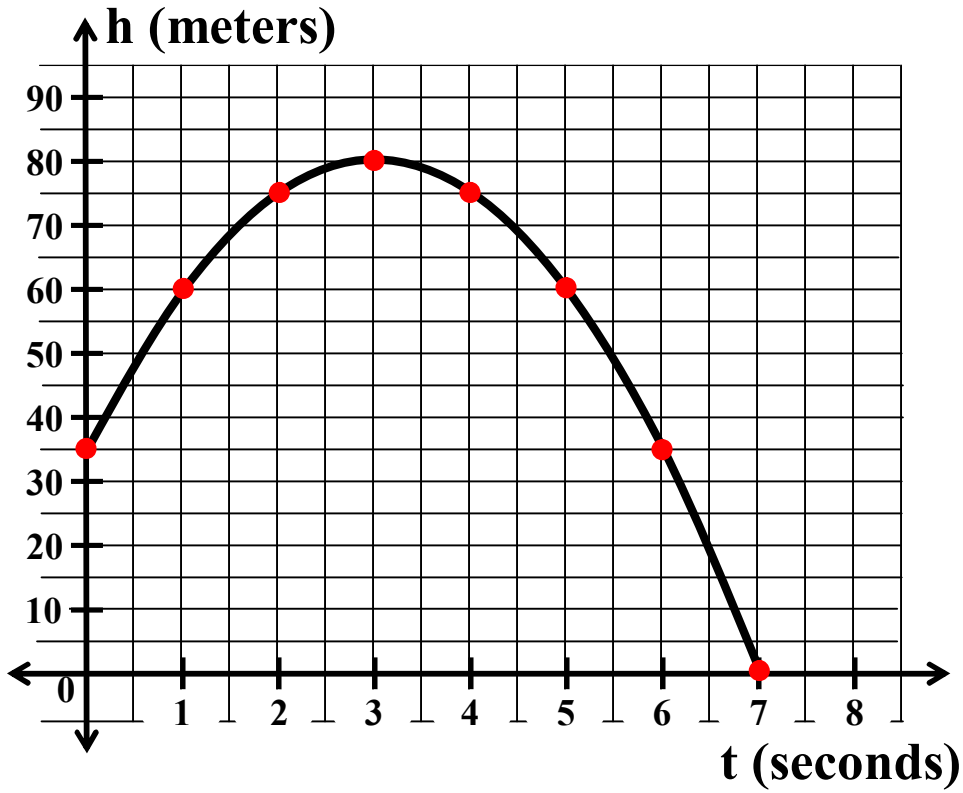
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
→ 2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds? **75 meters**

5. What is the velocity of the ball after 2 seconds?

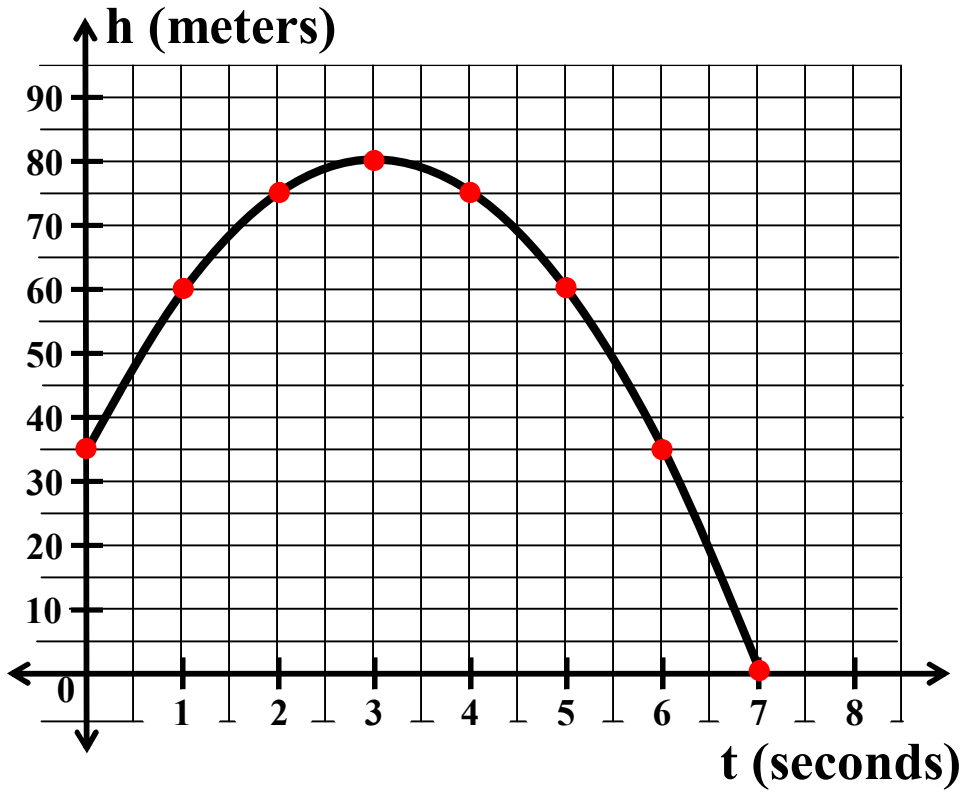
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35.$ $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
→ 2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds? **75 meters**

5. What is the velocity of the ball after 2 seconds?

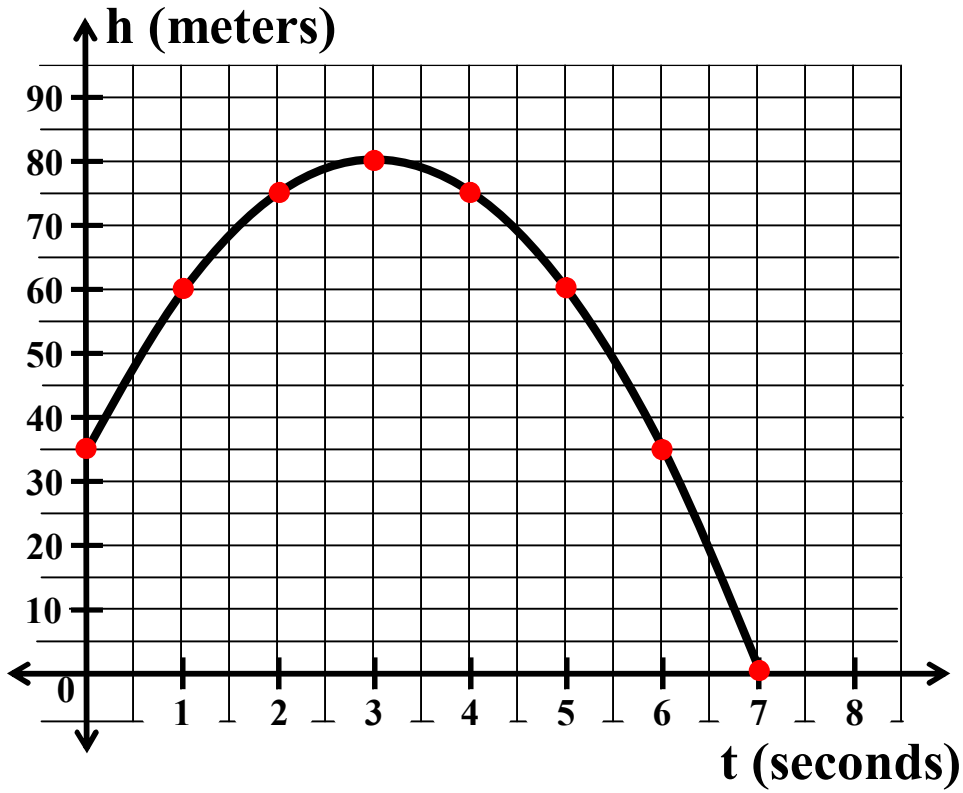
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35.$ $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
→ 2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds? **75 meters**

5. What is the velocity of the ball after 2 seconds?

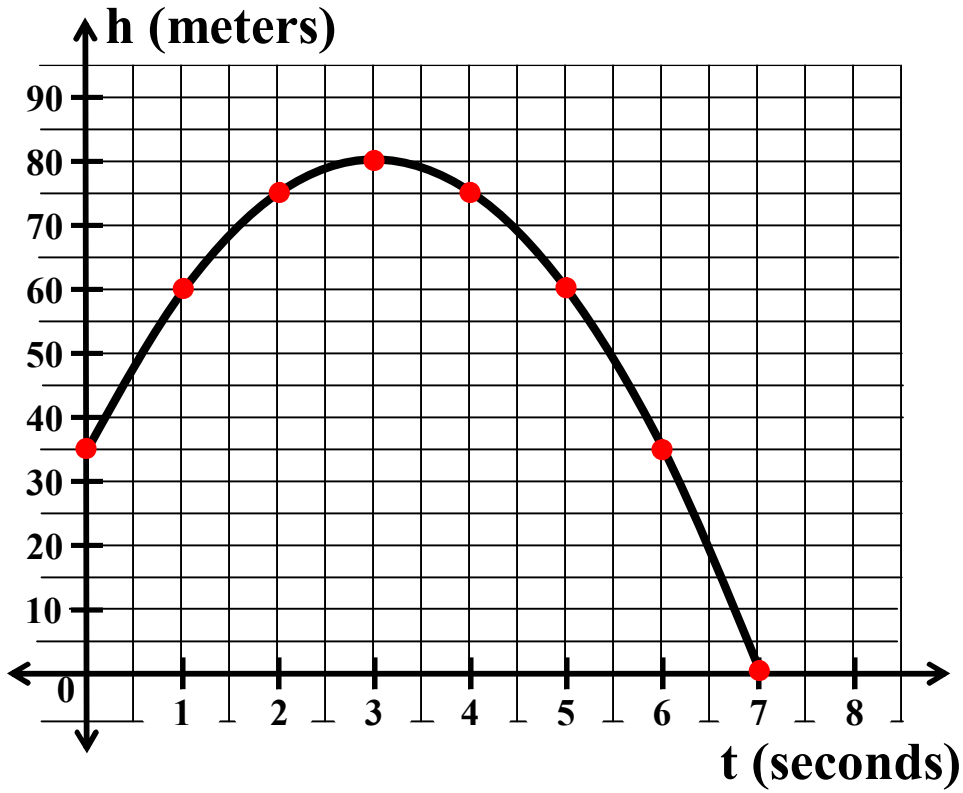
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35.$ $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
→ 2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds? <u>75 meters</u>

5. What is the velocity of the ball after 2 seconds? <u>moving up at 10 mps.</u>

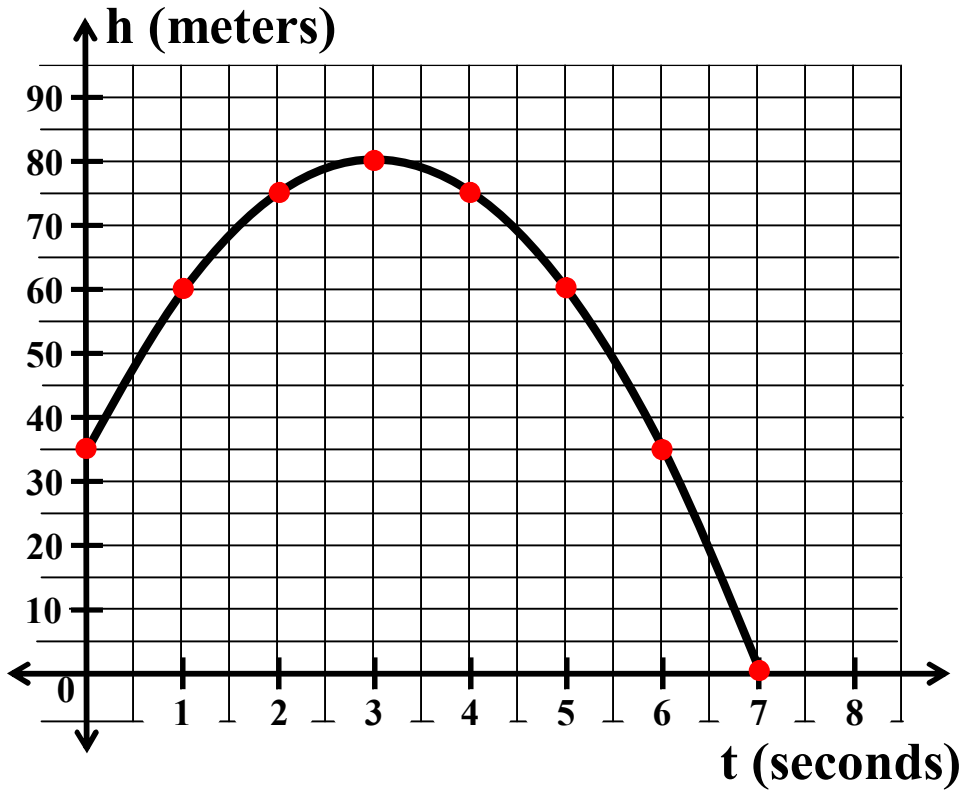
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



4. How high above the ground is the ball after 2 seconds? <u>75 meters</u>

5. What is the velocity of the ball after 2 seconds? <u>moving up at 10 mps.</u>

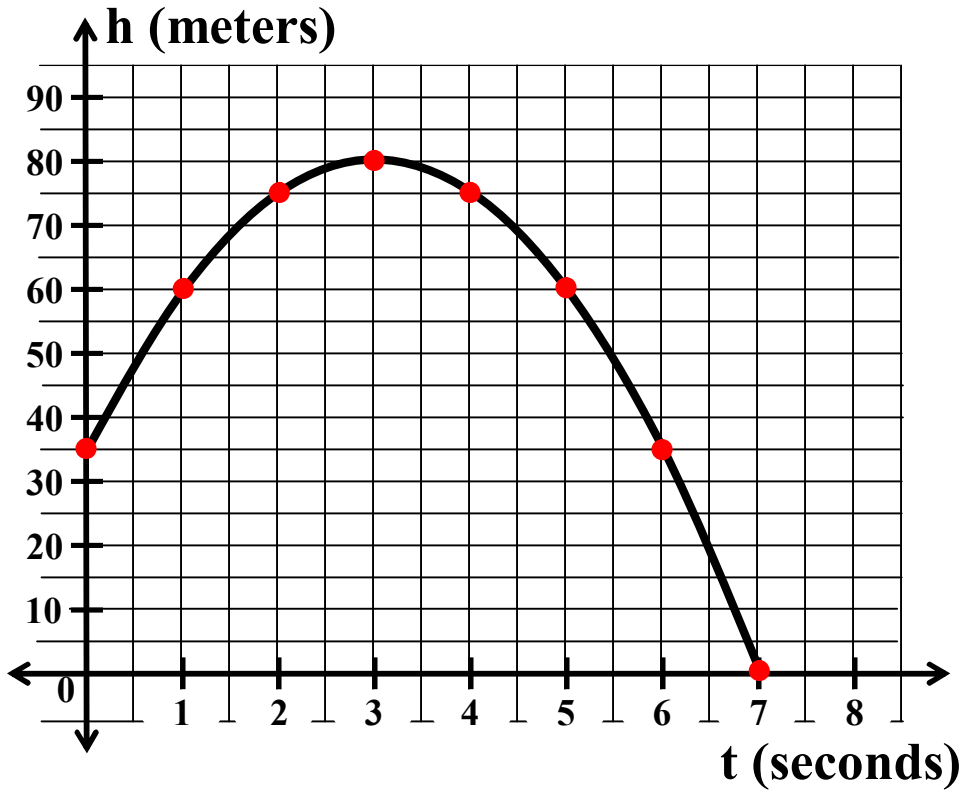
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds?

7. What is the velocity of the ball after 5 seconds?

Calculus Class Worksheet #5a Unit 1

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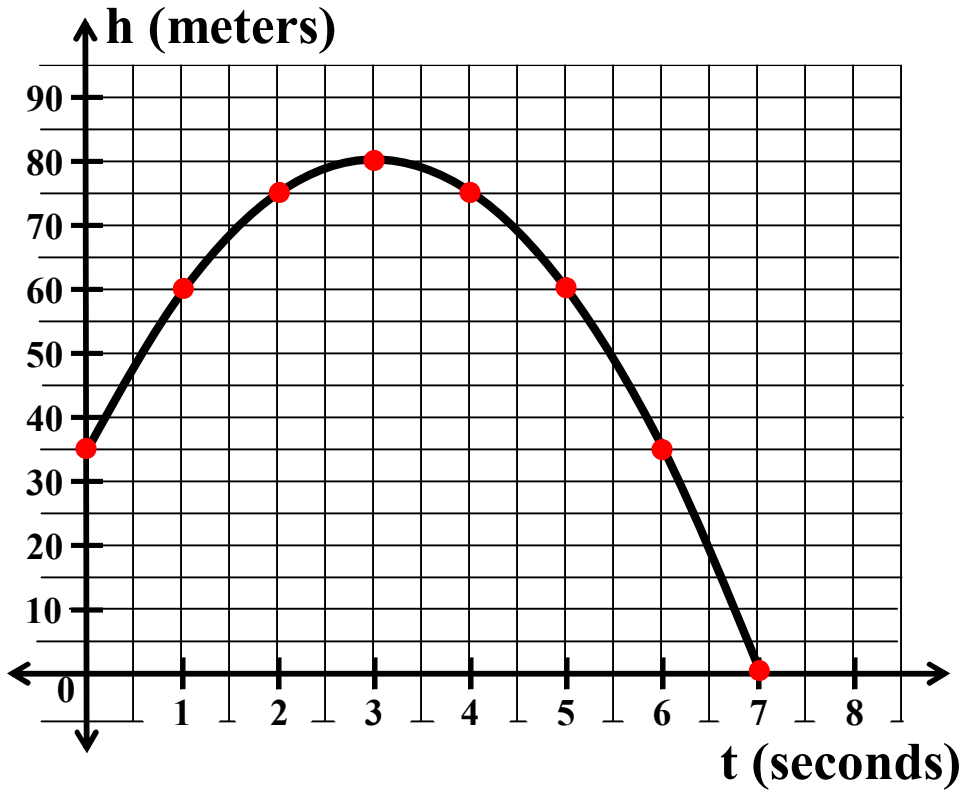
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds?

7. What is the velocity of the ball after 5 seconds?

Calculus Class Worksheet #5a Unit 1

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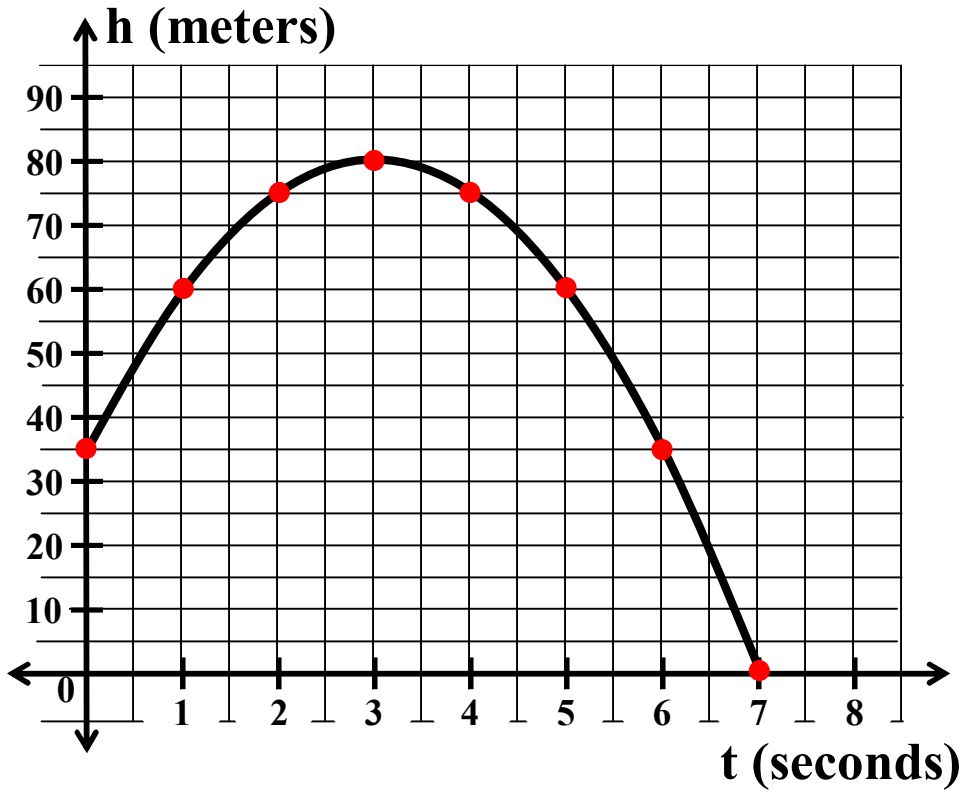
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
→ 5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds?

7. What is the velocity of the ball after 5 seconds?

Calculus Class Worksheet #5a Unit 1

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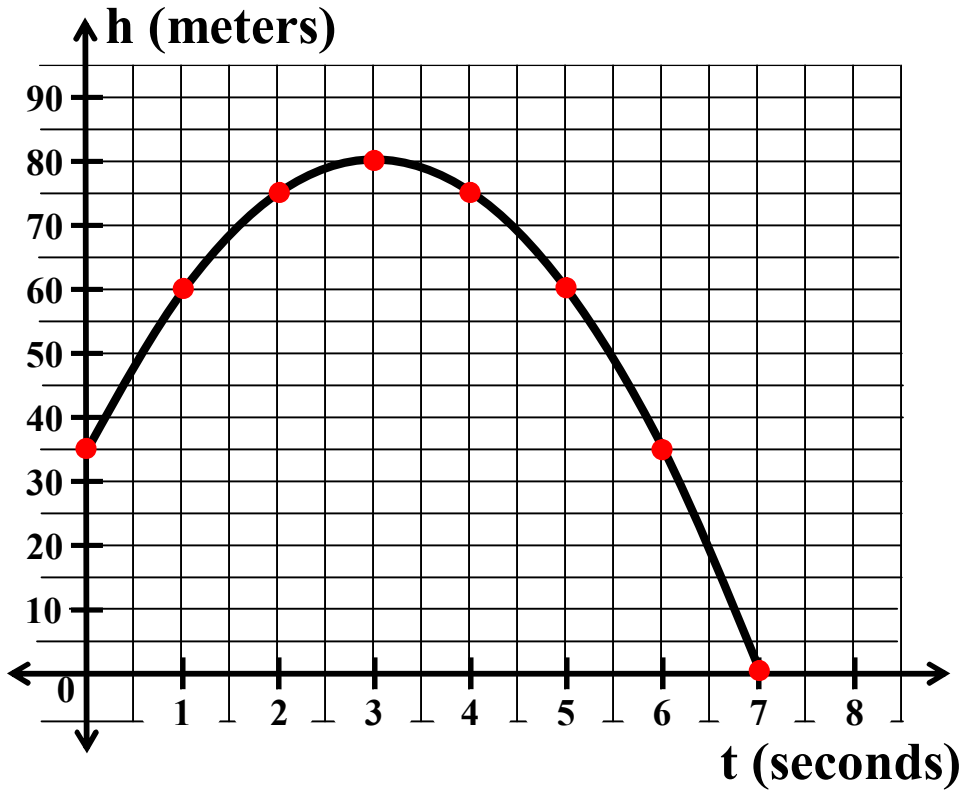
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
→ 5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds? **60 meters**

7. What is the velocity of the ball after 5 seconds?

Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
→ 5	60	-20
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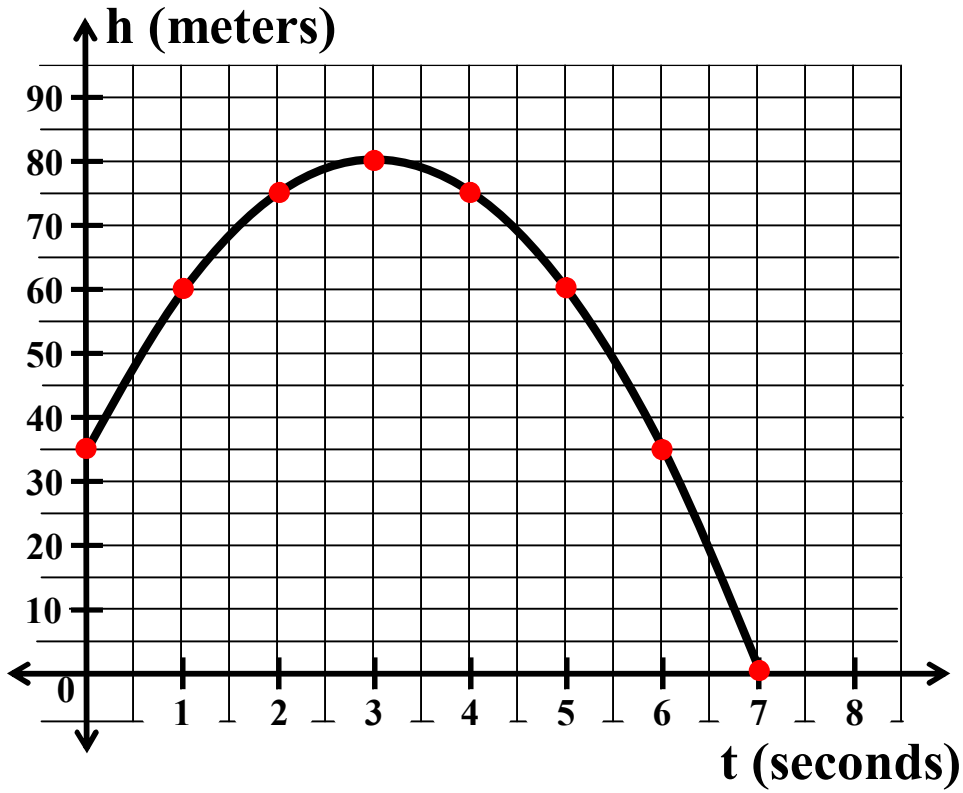
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds? **60 meters**

7. What is the velocity of the ball after 5 seconds?

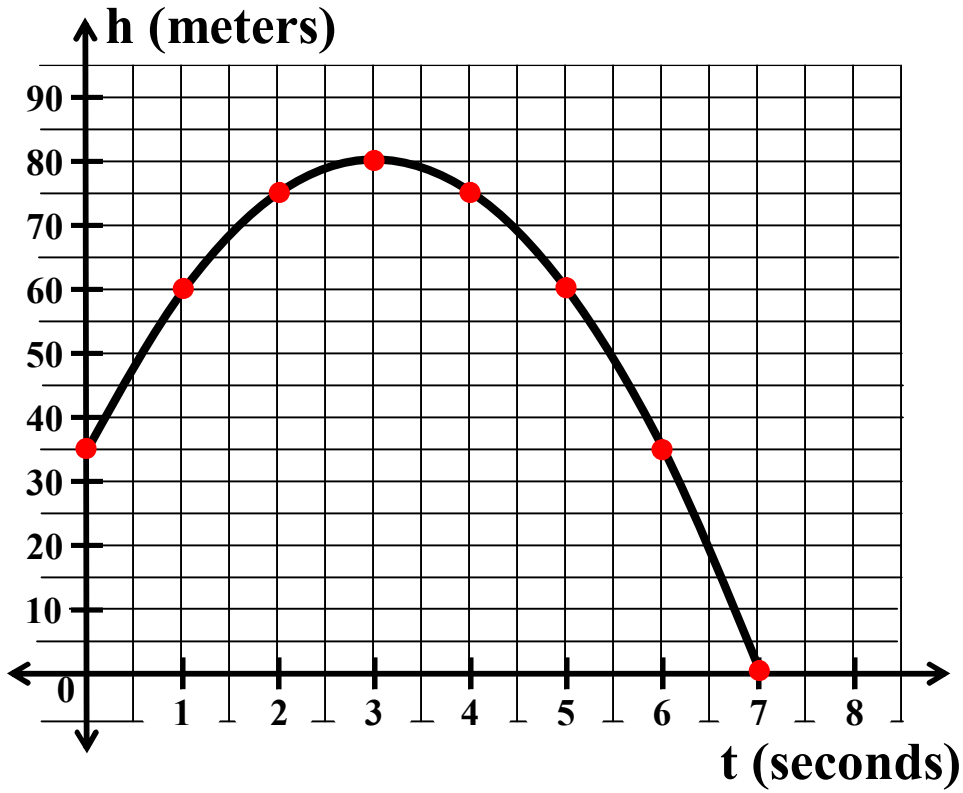
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
→ 5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds? **60 meters**

7. What is the velocity of the ball after 5 seconds?

Calculus Class Worksheet #5a Unit 1

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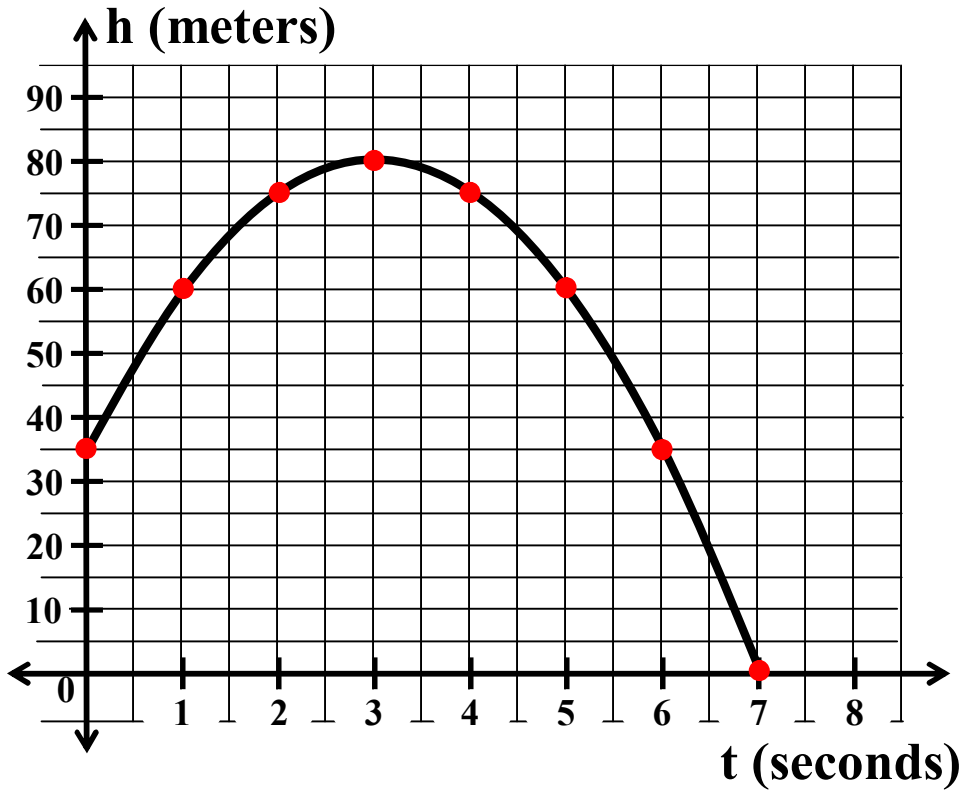
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
→ 5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds? **60 meters**

7. What is the velocity of the ball after 5 seconds? **moving down at 20 mps.**

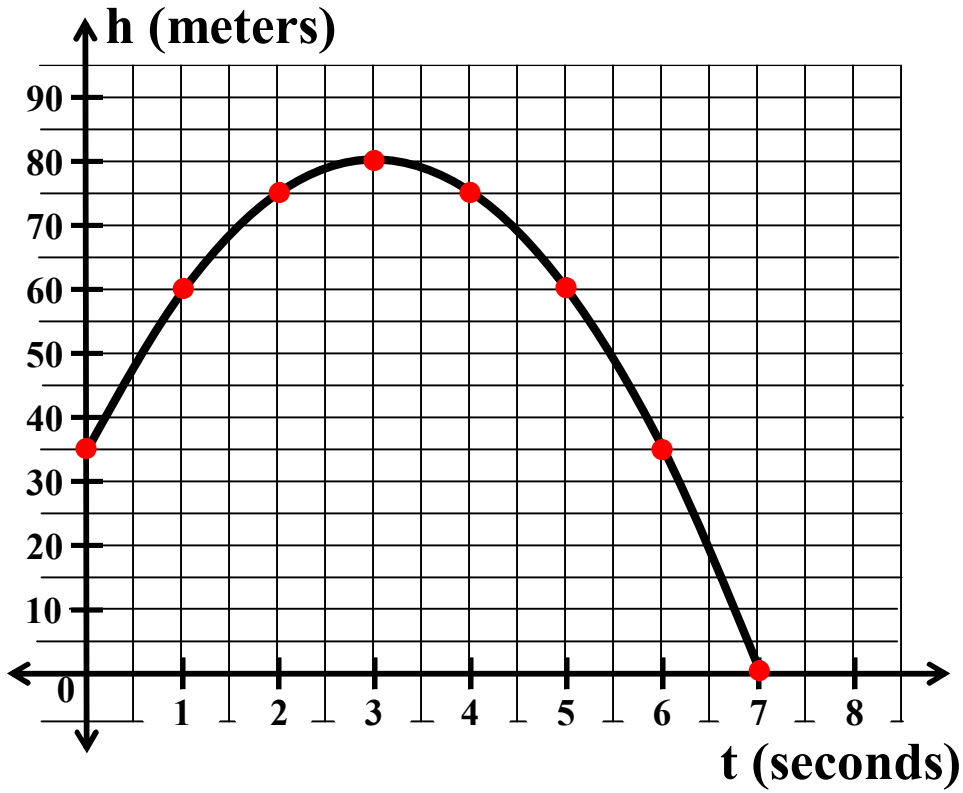
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



6. How high above the ground is the ball after 5 seconds? 60 meters

7. What is the velocity of the ball after 5 seconds? moving down at 20 mps.

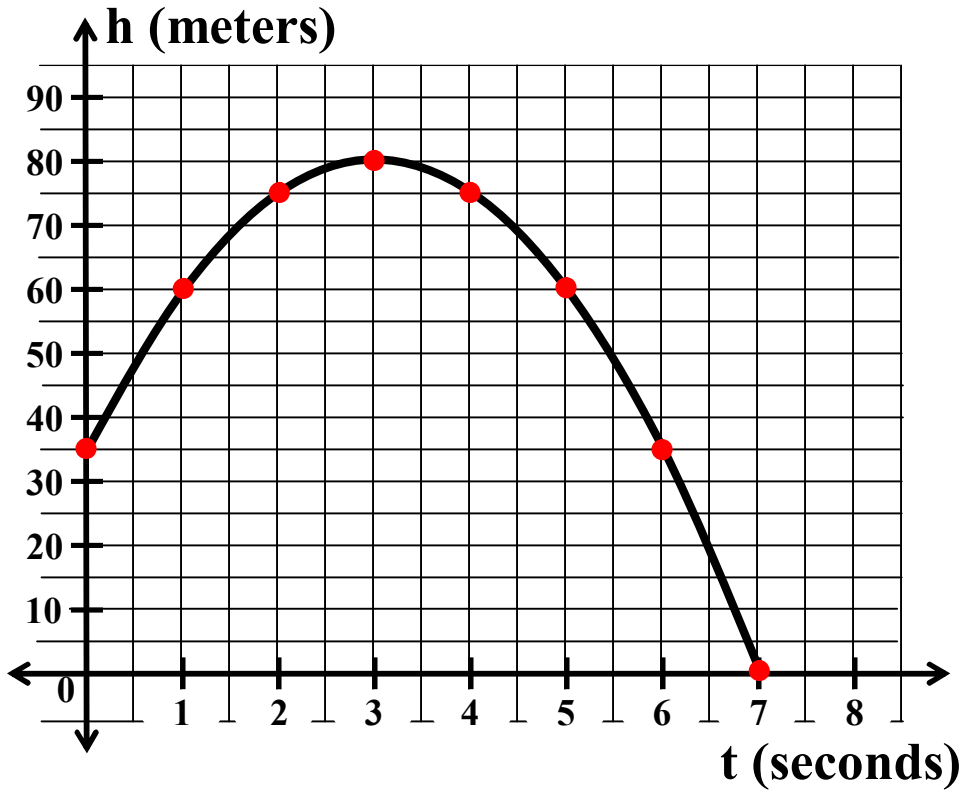
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



8. What is the maximum height of the ball in its flight?

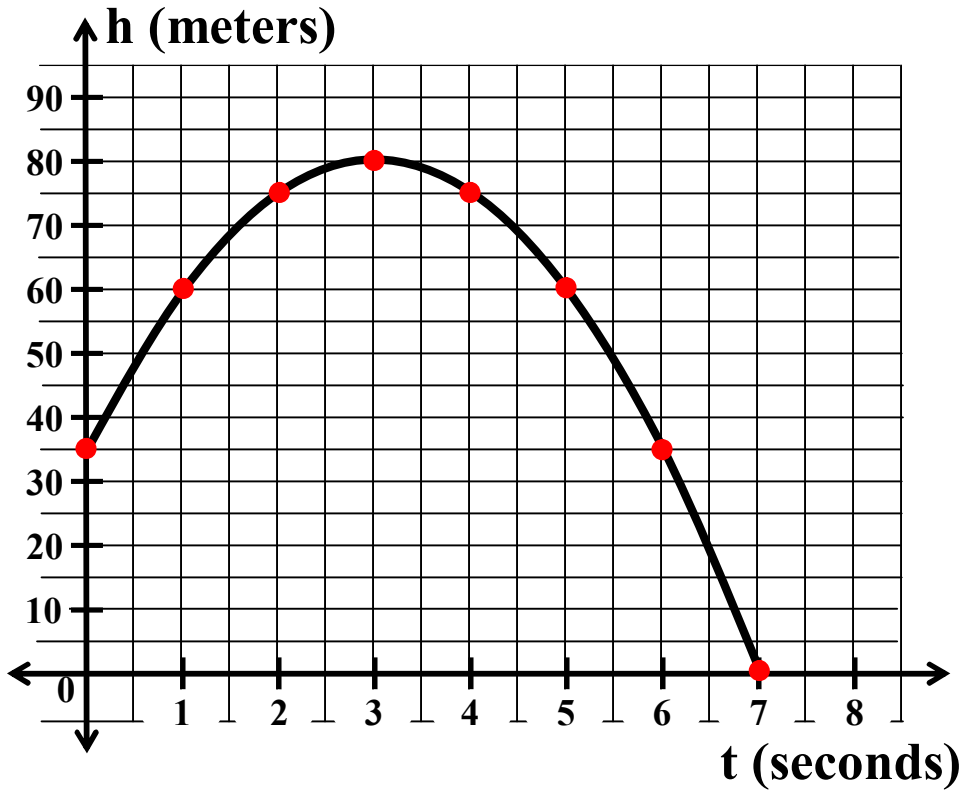
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35.$ $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
→ 3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



8. What is the maximum height of the ball in its flight?

Calculus Class Worksheet #5a Unit 1

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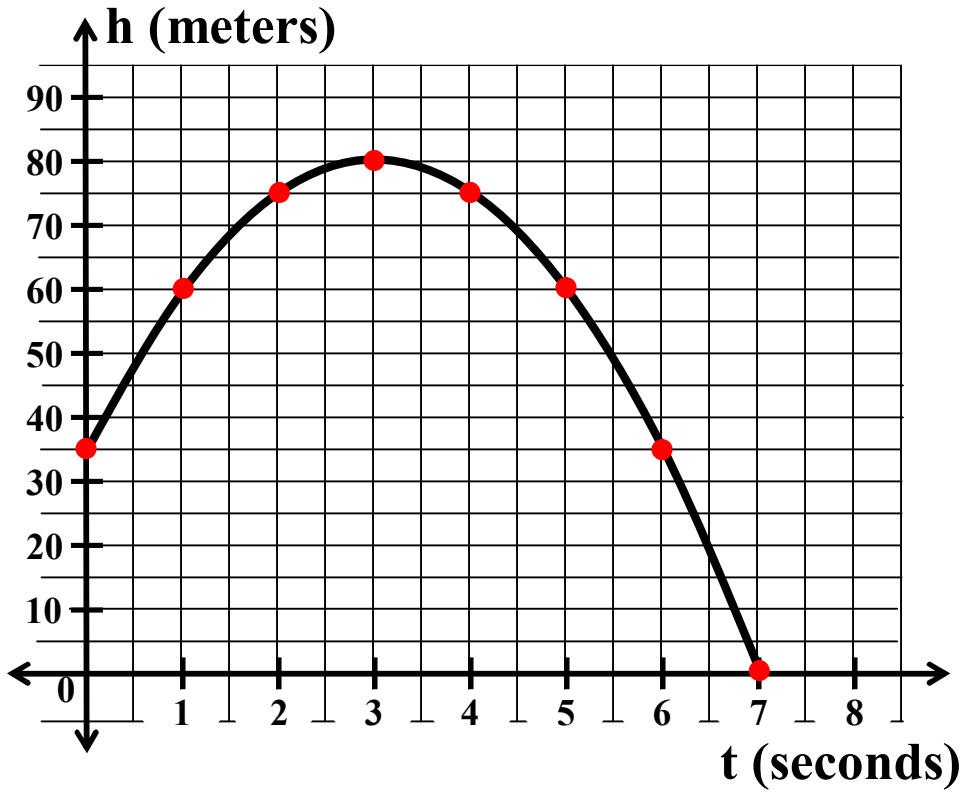
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
→ 3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



8. What is the maximum height of the ball in its flight? **80 meters**

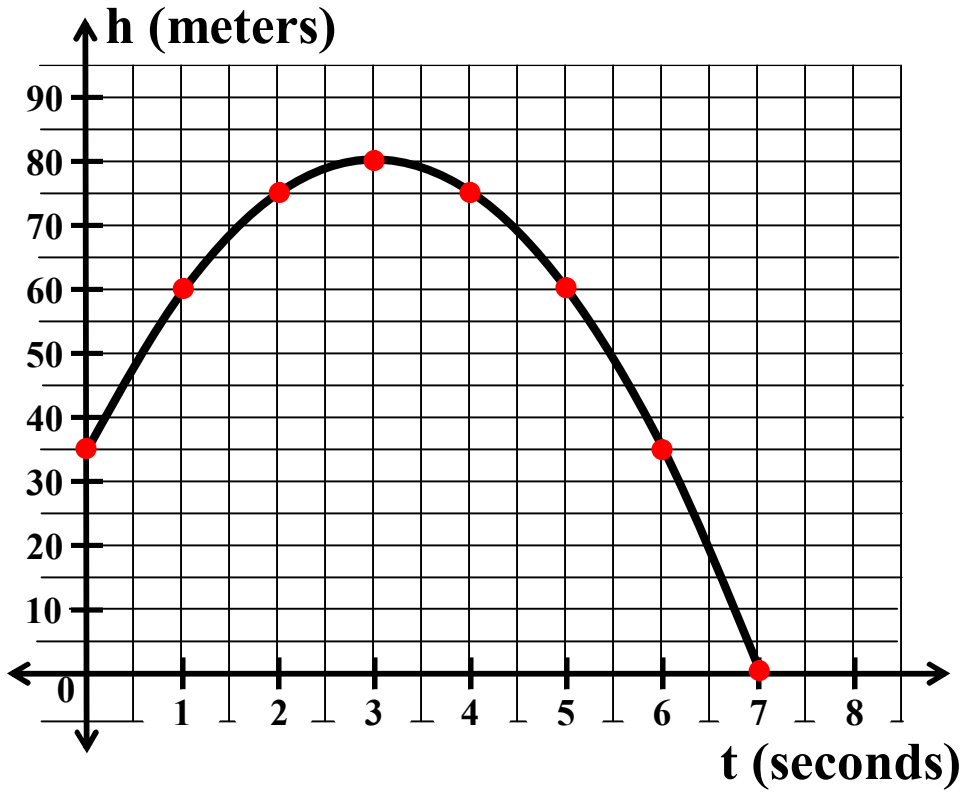
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35.$ $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
→ 3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



8. What is the maximum height of the ball in its flight? **80 meters**

The maximum value of h = f(t) occurs when v = f '(t) = 0 !!

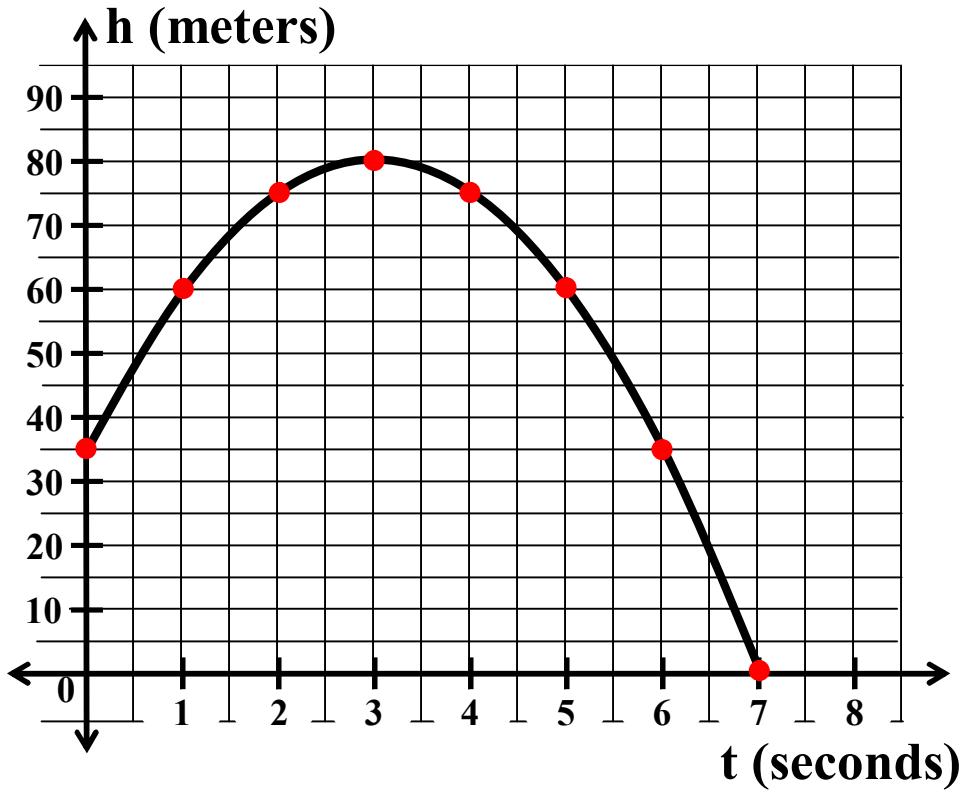
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.



9. How fast is the ball moving as it hits the ground?

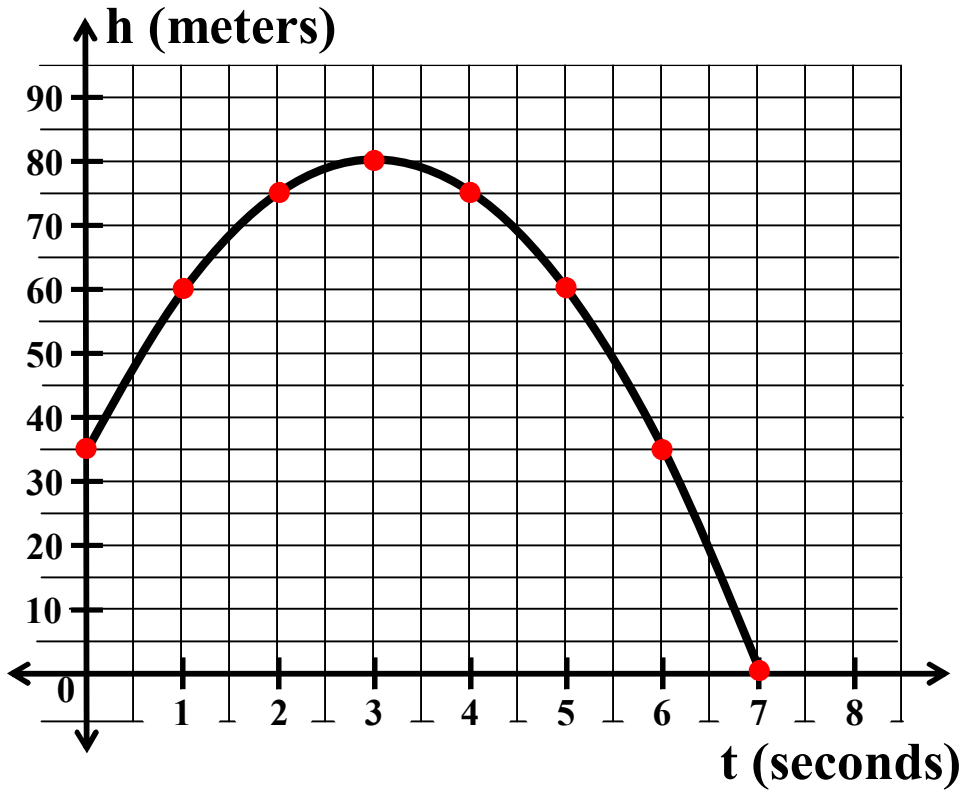
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
→ 7	0	-40

3. Graph function f below.



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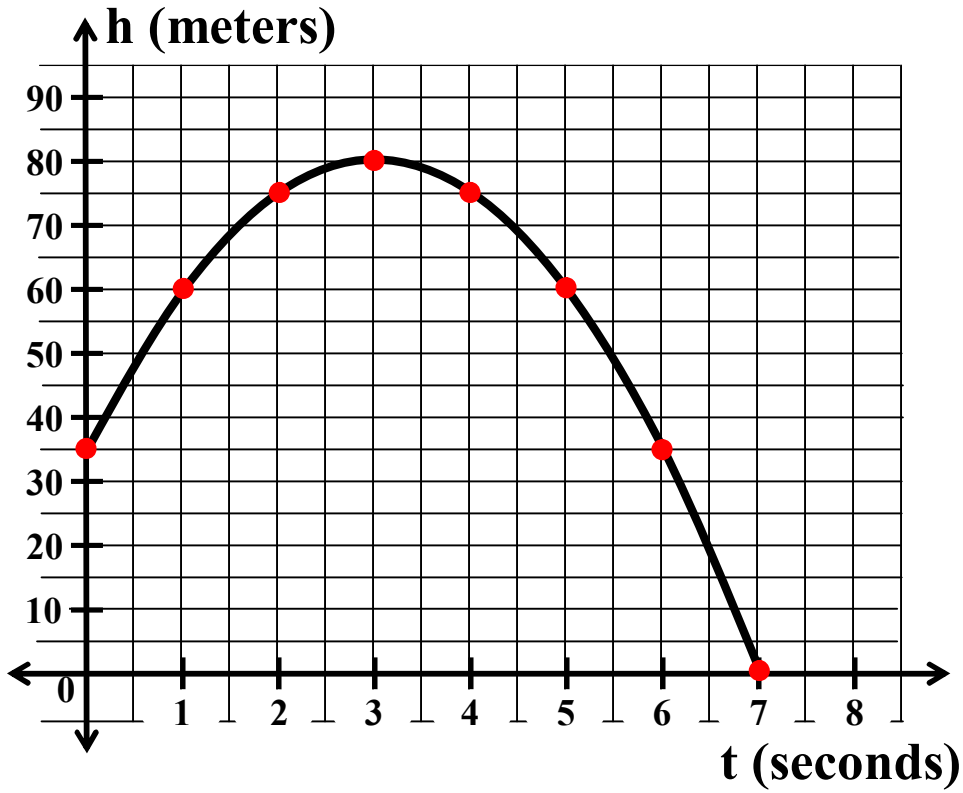
2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
→ 7	0	-40

3. Graph function f below.



9. How fast is the ball moving as it hits the ground?

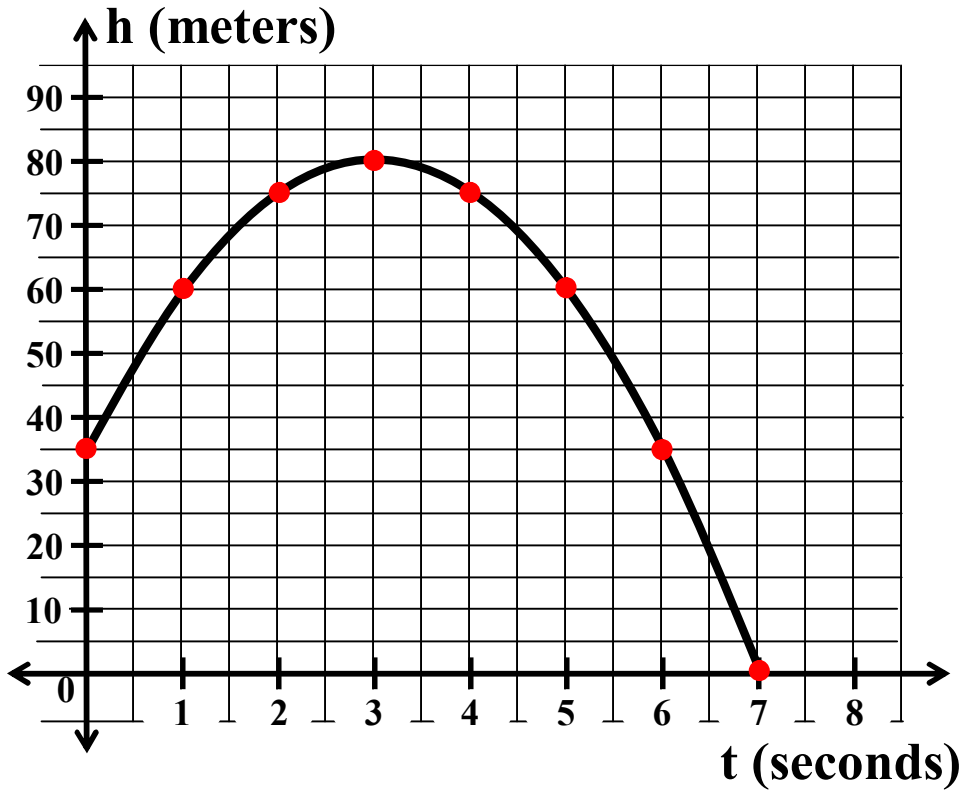
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
→ 7	0	-40

3. Graph function f below.



9. How fast is the ball moving as it hits the ground? 40 meters per second

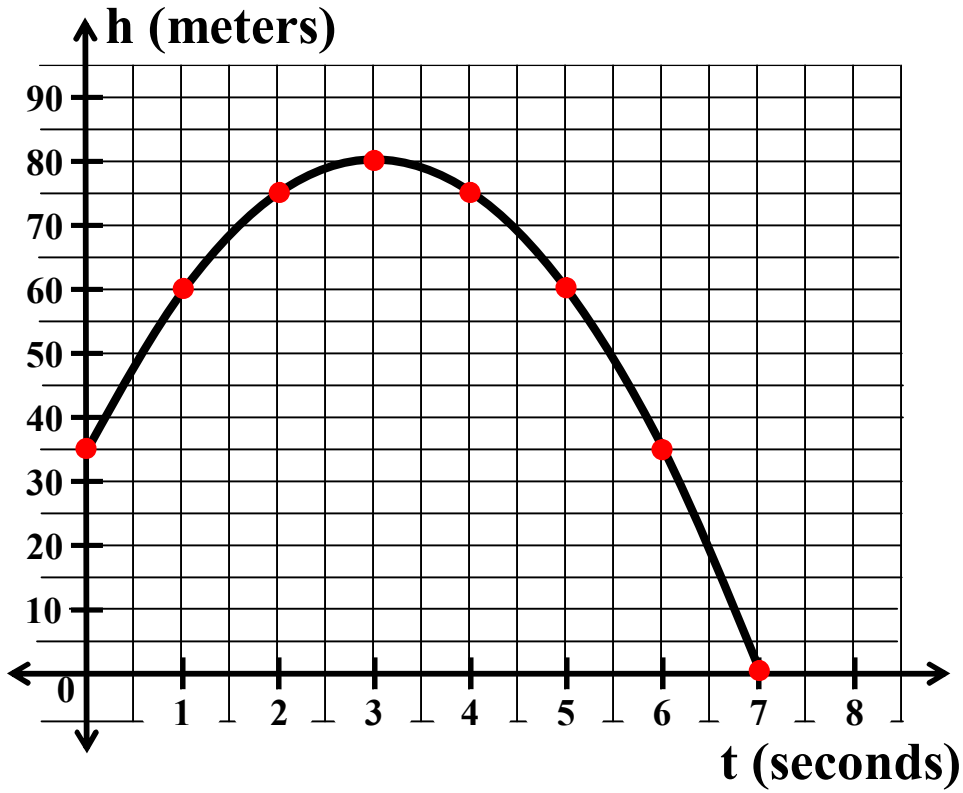
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
→ 7	0	-40

3. Graph function f below.



9. How fast is the ball moving as it hits the ground? **40 meters per second**

This is called the impact speed.

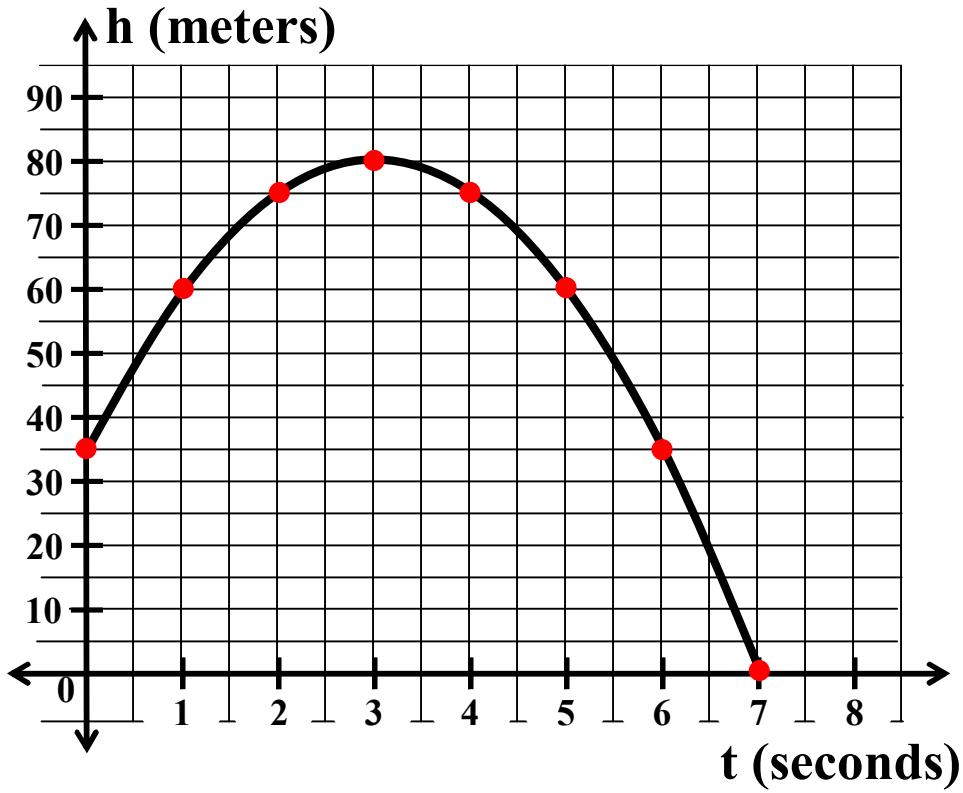
Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
→ 7	0	-40

3. Graph function f below.



9. How fast is the ball moving as it hits the ground? 40 meters per second

This is called the impact speed. (Speed is never negative.)

Calculus Class Worksheet #5a Unit 1

$h = f(t) = -5t^2 + 30t + 35$. $V = f'(t) = -10t + 30$

2. Fill out the table below.

t seconds	f(t) meters	f ′(t) meters per second
0	35	30
1	60	20
2	75	10
3	80	0
4	75	-10
5	60	-20
6	35	-30
7	0	-40

3. Graph function f below.