Wildfires Anchor Papers

Wildfires burn millions of acres every year. Wildfires burn at a rapid speed and can consume everything in their paths. Fire trucks are used to contain wildfires such as those experienced by people living in California.

The height of a stream of water from the nozzle of a fire hose is modeled by

h(x) =-0.03x2 + x + 48

Where h*(x)* is the height in feet, of the stream of water x feet from the fire truck.

1.   What is the maximum height the water from this nozzle can reach? What is the maximum distance from the firetruck a firefighter can stand and still reach the fire?

2.   When the stream of water from the nozzle is 32 feet above ground, what is the horizontal distance the water travels before it hits the ground?

3.   If the wildfire is located 48 feet from the firetruck. Based on the original function provided, will the firemen be able to reach the fire? Explain why or why not.

4.   Based on the original function, if a wildfire is located 63 feet away from the firetruck, will the firemen able to put out the fire? Explain why or why not.

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STUDENT A

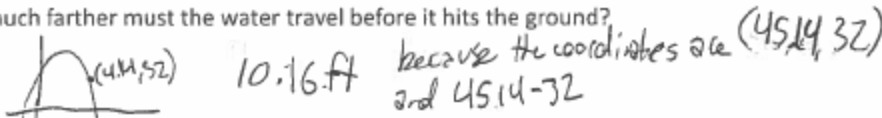The height of a stream of water from the nozzle of a fire hose is modeled by

$h(x) = -0.03x^2 + x + 48$ (height in feet) = -0.03(feet from)² + (ft from) + 48

where h(x) is the height in feet, of the stream of water x feet from the fire truck.

1. What is the maximum height the water from this nozzle can reach? What is the maximum distance from the firetruck a firefighter can stand and still reach the fire?

56.333 = height height ft.
-1.44
60 = Max height

2. When the stream of water from the nozzle is 32 feet above ground, how much farther must the water travel before it hits the ground?

(u.M,52)   10.16 ft   because the coordinates are (45.14, 32)
and 45.14-32

3. If the wildfire is located 48 feet from the firetruck. Based on the original function provided, will the firemen be able to extinguish the fire? Explain why or why not.

Yes, it can reach to 48 f.t. The max distance is 60ft, and that encompesses 48ft

4. Based on the original function, if the wildfire is located 63 feet away from the firetruck, will the firemen be able to extinguish the fire? Explain why or why not.

No, it is to far away for the nozzle to reach. The max distance is 60ft
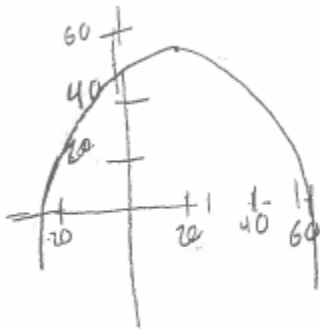
STUDENT B

The height of a stream of water from the nozzle of a fire hose is modeled by

height

$h(x) = -0.03x^2 + x + 48$ *ft from truck*

where h(x) is the height in feet, of the stream of water x feet from the fire truck.

1. What is the maximum height the water from this nozzle can reach? What is the maximum distance from the firetruck a firefighter can stand and still reach the fire?

$$h(x) = 56.3 ft$$
$$x = 60 ft$$

2. When the stream of water from the nozzle is 32 feet above ground, how much farther must the water travel before it hits the ground?

distance height
ground = 60

$$32ft = -0.03x^2 + x + 48$$
$$45.147ft$$
$$x = 45.147 ft$$
$$-45.147 ft$$
$$x = 14.853$$

3. If the wildfire is located 48 feet from the firetruck. Based on the original function provided, will the firemen be able to extinguish the fire? Explain why or why not. yes because the max distance is 60 ft

4. Based on the original function, if the wildfire is located 63 feet away from the firetruck, will the firemen be able to extinguish the fire? Explain why or why not. No because the max distance the nozzle can reach is 60 ft

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STUDENT C

The height of a stream of water from the nozzle of a fire hose is modeled by

$$h(x) = -0.03x^2 + x + 48$$

where h(x) is the height in feet, of the stream of water x feet from the fire truck.

1. What is the maximum height the water from this nozzle can reach? What is the maximum distance from the firetruck a firefighter can stand and still reach the fire?

$x = -26, 60$

$Y = 56.3\overline{3}$

2. When the stream of water from the nozzle is 32 feet above ground, how much farther must the water travel before it hits the ground?

$-0.03x^2 + x + 32$

3. If the wildfire is located 48 feet from the firetruck. Based on the original function provided, will the firemen be able to extinguish the fire? Explain why or why not. I think it won't touch the fire b/c I got 56 ft when the truck is 48ft away so the water would go over the target I think.

4. Based on the original function, if the wildfire is located 63 feet away from the firetruck, will the firemen be able to extinguish the fire? Explain why or why not. Yes b/c 56 ft is closer to 63ft making it easier to reach the fire.

STUDENT D

The height of a stream of water from the nozzle of a fire hose is modeled by

y = height

$h(x) = -0.03x^2 + x + 48$ x = Length from truck

where h(x) is the height in feet, of the stream of water x feet from the fire truck.

y

1.   What is the <u>maximum height</u> the water from this nozzle can reach? What is the <u>maximum distance from the firetruck</u> a firefighter can stand and still reach the fire?

x

56.33ft   max height

86.667ft   max distance

2.   When the stream of water from the nozzle is 32 feet above ground, how much farther must the water travel before it hits the ground?

14.853   ft

3.   If the wildfire is located 48 feet from the firetruck. Based on the original function provided, will the firemen be able to extinguish the fire? Explain why or why not.

Yes because it's within the range

4.   Based on the original function, if the wildfire is located 63 feet away from the firetruck, will the firemen be able to extinguish the fire? Explain why or why not.

No it is not in between the range