Name: _____ **TC**

Classwork 57

1. Lily is walking away from school. At t = 10 seconds, she is 4 meters away. At t = 20 seconds, she is 64 meters away.

a) If we assume Lily is walking at a constant speed, what is her speed?

What is her acceleration?

b) Let's say Lily is really accelerating, because she is running late. If Lily is going 2 m/s at t = 10 seconds and we assume Lily's acceleration is constant, what is her acceleration?

Use $\Delta d = 1/2a(\Delta t)^2 + Vi\Delta t$

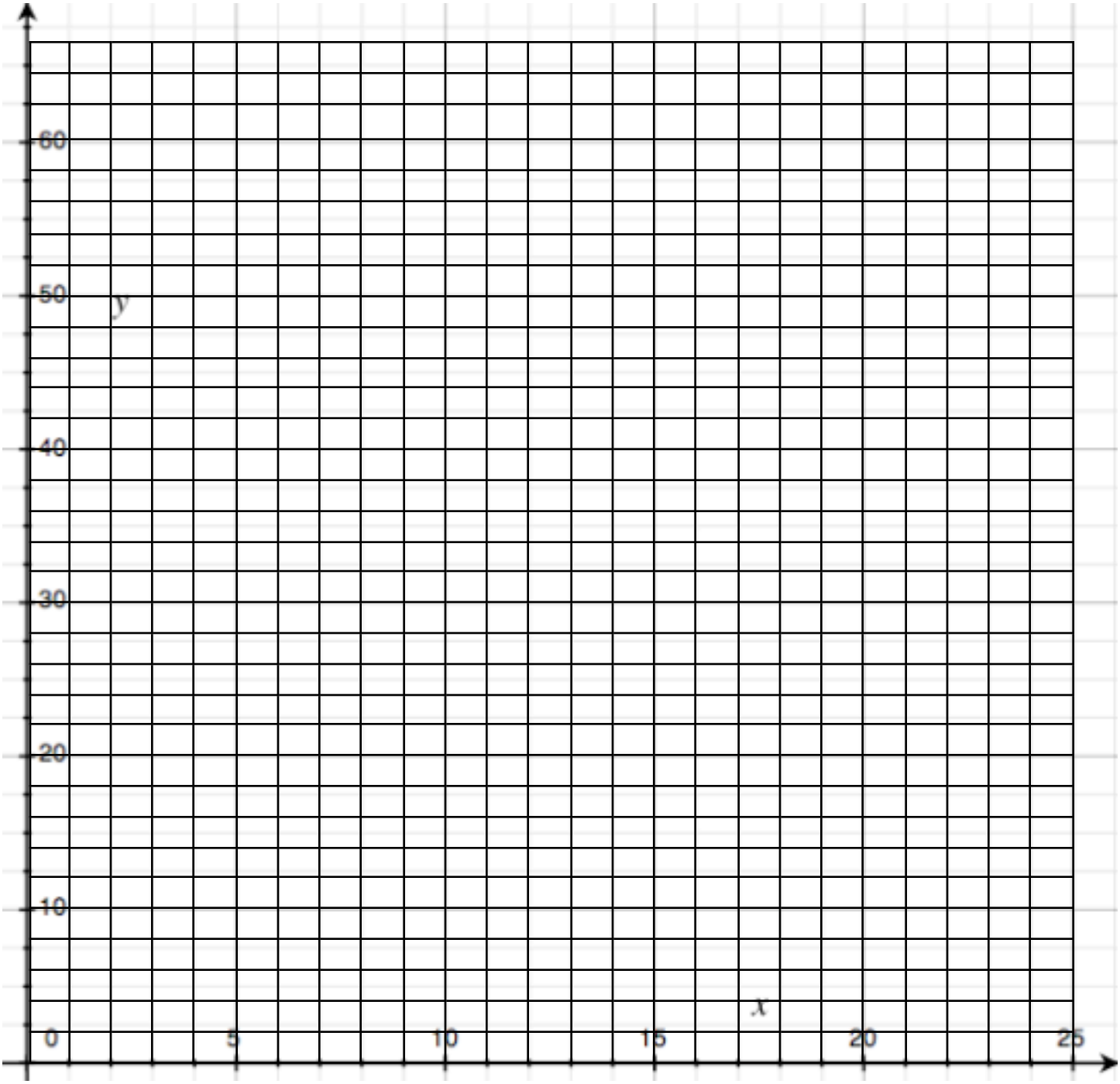
What is her speed at t = 20 seconds under these conditions?

c) Is it possible that Lily's movement is really discribed by $d = 1/100t^3 - t + 4$?

If this were the real equation, what would her speed be at t = 20 seconds?

What would her acceleration be at t = 20 seconds?

d) Graph the 3 possible scenarios on the graph below.



2. An object is moving according to the formula $y = 4/t + 4t^3$ where y represents distance in meters and t represents time in seconds.

a) Find the object's position at $t = 2$.

b) Find the object's speed at $t = 2$.

c) Find the object's acceleration at $t = 2$.

d) When is the object's displacement at a maximum?

e) When is the object's *speed* at a maximum?

f) Draw a sketch of what is happening.

2. An object is moving according to the formula $y = 6\sqrt{t} - 3t^2$ where y represents distance in meters and t represents time in seconds.

a) Find the object's position at $t = 4$.

b) Find the object's speed at $t = 4$.

c) Find the object's acceleration at $t = 4$.

d) When is the object's displacement at a maximum?

e) When is the object's *speed* at a maximum?

f) Draw a sketch of what is happening.