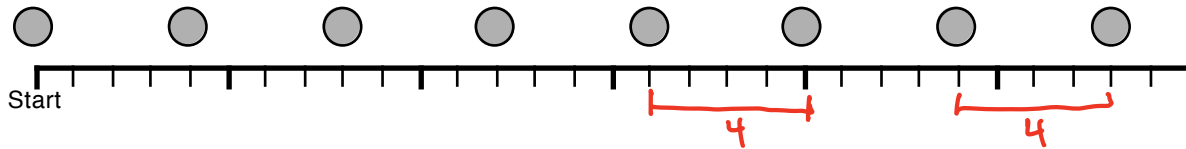


Acceleration Concept Sheet

To help get a better understanding of the difference between speed and acceleration, let's imagine taking a snapshot of where an object is once every single second for several seconds. For this sheet, let's also keep things a little straightforward and always say that the pictures show things moving to the right, and never going backwards.

Questions 1 to 5 refer to the following picture.



1. What is true about the distance between each position?
- its always 4 spaces
2. What is true about the average speed between each position?
∴ its all The same (in other words, it has a CONSTANT velocity)
3. Sketch what it would look like if it was going twice as fast:



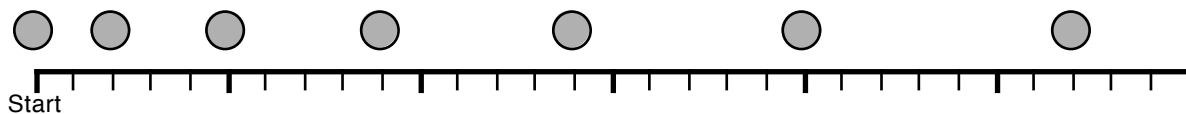
4. Sketch what it would look like if it was going half as fast:



5. If an object has a constant speed what is happening? (In other words, what is meant by the phrase "constant speed?")

its speed never changes.

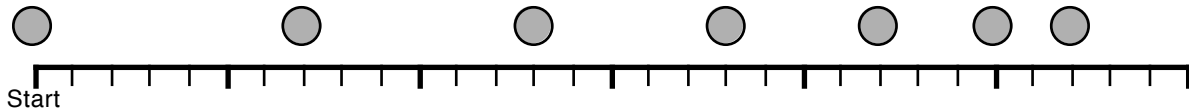
Questions 6 to 7 refer to the following picture. Something very important is different.



6. What is true about the distance between each position?
it gets bigger
7. What is true about the average speed between each position?
so the average speed is getting bigger
8. Was this speeding up or slowing down. How do you know?
Speeding up. Because each second it goes further than the second before

Acceleration Concept Sheet

Questions 9 to 11 refer to the following picture.



9. What is true about the distance between each position?

It gets smaller

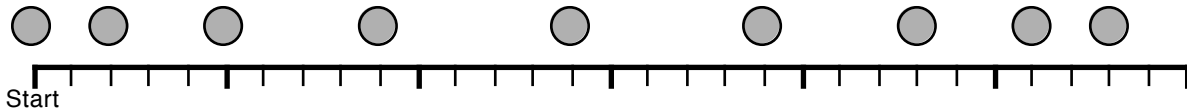
10. What is true about the average speed between each position?

So the average speed is going down

11. Was this speeding up or slowing down. How do you know?

So slowing down. [see #9 & 11]

Questions 12 to 14 refer to the following picture.



12. What is true about the distance between each position?

Gets bigger, THEN gets smaller

13. What is true about the average speed between each position?

So it went UP then DOWN

14. Was this speeding up or slowing down (Be careful!) How do you know?

Both! Sped up first, then it slowed down

15. Where was it going the fastest? How about the slowest?

In the middle ↗ ↘ slowest at the start and end

Questions 16 to 20 refer to the graph shown to the right.

16. Describe the motion shown by the graph.

Object sped up - going from 20kph to 50 kph in 6 hrs

17. Each second, how much faster is the object moving?

*Sped up 30 kph in 6 s
so $30/6 = 5 \text{ kph @ second}$*

18. What is the slope of the graph?

slope is $\frac{50-20}{6} = 5 \text{ kph/s}$

19. What is the acceleration of the object?

$a = \frac{v_f - v_i}{t} = \frac{50-20}{6} = 5 \frac{\text{kph}}{\text{s}}$

20. What could the object be?

A car or truck

