

1

First of all from $16 < x < 18$ you cannot say that $x = 17$. You have the range for x , you cannot take an average and say that x equals to it.

Question is $d > 6$ --> as $rt = d$ (where r is the rate in miles per hour) then question becomes: is $rt = d > 6$ --> or is $r * \frac{1}{2} > 6$,
 as $t = \frac{1}{2}$ hours --> is $r > 12$ miles/hour? --
 $12 \text{ miles/hour} = \frac{12 * 5280}{60 * 60} \text{ feet/second} = 17.6 \text{ feet/sec}$. Is $r > 17.6$ feet/sec?

(1) $r > 16$ feet/sec. Not sufficient.

(2) $r < 18$ feet/sec. Not sufficient.

(1)+(2) $16 < r < 18$ still not sufficient to say whether $r > 17.6$.

Answer: E.

2

Reiko drove from point A to point B at a constant speed, and then returned to A along the same route at a different constant speed. Did Reiko travel from A to B at a speed greater than 40 miles per hour?

Say the distance from A to B is d miles.

(1) Reiko's average speed for the entire round trip, excluding the time spent at point B, was 80 miles per hour -->

$\text{average speed} = \frac{\text{total distance}}{\text{total time}} = \frac{2d}{\text{total time}} = 80 \rightarrow \text{total time} = \frac{d}{40}$. Now, since the time

from A to B must be less than the total time (less than $\frac{d}{40}$), then Reiko's speed from A to B

$\text{speed} = \frac{\text{distance}}{\text{time}} = \frac{d}{\text{less than } \frac{d}{40}} = \frac{1}{\text{less than } \frac{1}{40}} > 40$
 is $\frac{d}{(\frac{d}{50})} = 50 > 40$ (for example if Reiko's speed from A to B is $d/50$, so
 less than $d/40$, then her speed from A to B is $(\frac{d}{50})$). Sufficient.

(2) It took Reiko 20 more minutes to drive from A to B than to make the return trip. Not sufficient.

Answer: A.

3

How long, in minutes, did it take a bicycle wheel to roll along a flat, straight 300-meter path?

Time=Distance:Rate, so to get the time we need to find the rate of the bicycle.

(1) The wheel made one full 360-degree rotation every 1.5 meters --> basically tells us that the circumference of the wheel is 1.5 meters. Not sufficient.

(2) The wheel made 18 360-degree rotations per minute --> the rate of the bicycle is 18 circumference per minute, but since we don't know the length of the circumference then this statement is also insufficient.

(1)+(2) The rate $18 * \text{circumference} = 18 * 1.5 = 27$ meter/minute. Sufficient.

Answer: C.

4

If he did not stop along the way, what speed did Bill average on his 3-hour trip?

The stem explicitly states that **Bill did not stop along the way**, so your doubt is not valid.

(1) He travelled a total of 120 miles --> (average speed) = (total distance traveled) / (time spent) --> (average speed) = $120/3 = 40$ miles per hour. Sufficient.

(2) He travelled **half the distance** at 30 miles per hour and half the distance at 60 miles per hour --> $(d/2)/30 + (d/2)/60 = 3$ (the time spent for the first half of the distance would be (distance traveled) / (speed) = $(d/2)/30$ and the time spent for the second half of the distance would be (distance traveled) / (speed) = $(d/2)/60$). Solving $(d/2)/30 + (d/2)/60 = 3$ for d: $d=120$ miles --> (average speed) = $120/3 = 40$ miles per hour. Sufficient.

Or: as he traveled $d/2$ mile at 30 miles per hour and then the same distance of $d/2$ at $30*2=60$ miles per hour (twice the previous speed) then he must have spent twice as much time for the first half as for the second ($t_1/t_2=2/1$), so as he spent total of 3 hours on the entire trip then he must have spent 2 hours for the first half and 1 hour for the second: $d=2*30+1*60=120$ --> (average speed) = $120/3 = 40$ miles per hour. Sufficient.

Answer: D.