1. A person runs $8 \mathrm{~m}[\mathrm{E}], 12 \mathrm{~m}$ [E], $10 \mathrm{~m}[\mathrm{~W}]$, and finally $5 \mathrm{~m}[\mathrm{E}]$. All of this happens in 8.5 s .
a. Calculate the object's distance and final position.
b. Calculate the object's average speed and average velocity.
2. A child bikes $55 \mathrm{~m}[\mathrm{E}], 20 \mathrm{~m}[\mathrm{~W}], 35 \mathrm{~m}[\mathrm{~W}], 45 \mathrm{~m}[\mathrm{E}]$ and finally 10 m [W]. All of this happens in 16 s .
a. Calculate the child's distance and final position.
b. Calculate the child's average speed and average velocity.
3. Some guy flies $180 \mathrm{~km}[\mathrm{~N}], 150 \mathrm{~km}[\mathrm{~N}], 200 \mathrm{~km}[\mathrm{~S}], 75 \mathrm{~km}[\mathrm{~S}]$ and 100 km [N]. All of this happens in 20 hr .
a. Calculate the guy's distance and final position.
b. Calculate the guy's average speed and average velocity.
4. A turtle swims $50 \mathrm{~m}[\mathrm{~S}], 75 \mathrm{~m}[\mathrm{~N}], 15 \mathrm{~m}[\mathrm{~S}], 25 \mathrm{~m}[\mathrm{~S}]$ and then $15 \mathrm{~m}[\mathrm{~N}]$. All of this happens in 18 s .
a. Calculate the turtle's distance and final position.
b. Calculate the turtle's average speed and average velocity.
5. Can an object in motion have the same value of distance and final position? If so, think of an example.
6. Can an object in motion have the same value of average speed and average velocity? If so, think of an example.
7. What is the average velocity of the Earth after exactly one year? How could we calculate average speed?
8. If two people run the same distance but it takes them a different amount of time, can they have the same average speed? Average velocity? Explain your answer.
9. Can two objects in motion have the same average velocity but a different average speed? What about the same average speed but a different average velocity? If so, provide an examples.
10. Can two objects have the same final position but a different distance traveled? What about the same distance but a different final position? If so, provide examples.
