

# Topic 1C: Constant Velocity

## Skill 9

39. Spiderman shoots a spider web line across a ravine that is 500m wide in a time of 0.01 seconds. What is the speed/velocity of the line?

Givens/Unknowns	Equation and substitution	Answer
$d = 500\text{ m} = 5 \times 10^2\text{ m}$ $t = 0.01\text{ s} = 1 \times 10^{-2}\text{ s}$ $v = ?$	$v = \frac{d}{t} = \frac{5 \times 10^2\text{ m}}{1 \times 10^{-2}\text{ s}}$	$5 \times 10^4\text{ m/s}$

40. A bee travels a distance of 15m across a porch in 2 seconds. What is the speed/velocity of the bee?

Givens/Unknowns	Equation and substitution	Answer
$d = 15\text{ m}$ $t = 2\text{ s}$ $v = ?$	$v = \frac{d}{t} = \frac{15\text{ m}}{2\text{ s}} =$	$7.5\text{ m/s}$

41. Ironman seems to travel just under the speed of sound so let's say 320m/s. How long would it take Ironman to travel from Los Angeles to Manhattan (3920km)?

Givens/Unknowns	Equation and substitution	Answer
$v = 320\text{ m/s}$ $d = 3920\text{ km} = 3.92 \times 10^6\text{ m}$ $t = ?$	$t = \frac{3.92 \times 10^6\text{ m}}{3.2 \times 10^2\text{ m/s}}$	$= 1.225 \times 10^4\text{ s}$

42. Light in a vacuum travels at  $3 \times 10^8\text{ m/s}$ . How many seconds does it take light reflected from the surface of the Moon to be seen on Earth?

Givens/Unknowns	Equation and substitution	Answer
$v = 3 \times 10^8\text{ m/s}$ $d = 3.84 \times 10^8\text{ m}$ $t = ?$	$t = \frac{d}{v} = \frac{3.84 \times 10^8\text{ m}}{3 \times 10^8\text{ m/s}}$	$1.28\text{ s}$