# Calculating Speed Practice

1 Fill in the table which shows typical speeds in m/s and km/h.
The moving objects are **Express train**, **Truck on motorway**, **Road Cyclist** and **Marathon running** (but not in that order).
The speeds in m/s are given, but the speeds in km/h will need to be added from the following options: $100$ km/h, $12$ km/h, $24$ km/h and $320$ km/h.

| **Object** | **Speed (m/s)** | **Speed (km/h)** |
|---|---|---|
| | 3 | |
| | 7 | |
| | 27 | |
| | 90 | |

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2 Complete the word equations.
(a) Distance $=$ (b) Time $=$

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3 Complete these equations using symbols.
$s$ is the distance, $t$ is the time taken and $v$ is the speed.
(a) $s =$ (b) $v =$ (c) $t =$

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4 Use your understanding of speed, or the formulae, to calculate
(a) the distance when a runner runs at $6$ m/s for $40$ s

(b) the distance when a truck travels at $25$ m/s for $8$ s

(c) the time when a jogger runs $900$ m at $3$ m/s

(d) the time when a tennis ball travels $18$ m at $36$ m/s

(e) the speed when a snail moves $10$ cm in $20$ s $(1 \text{ cm} = 0.01 \text{ m})$

(f) the speed when a trolley moves runs $15$ m in $5$ s.

5 An athlete sprints at $9$ m/s. How far will they run in
(a) two seconds (b) $30$ s?

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6 A coach on a motorway travels at $100$ km/h. How much time does it take to travel
(a) $600$ km (b) $25$ km?

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7 Use your understanding of speed, or the formulae, to calculate

(a) the distance if a $7.5$ km/s satellite moves for one minute

(b) the time taken for a train to travel $60$ km at $200$ km/h

(c) the speed if an airliner travels $6000$ km in $7.5$ hr

(d) the speed if a warthog runs $4.5$ km in $5$ min. (Hint: how far will it run in one hour?)

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8 A radio controlled car moves forward at $5$ m/s for $4$ s then backwards at $10$ m/s for $3$ s. How far is it from its starting point?

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9 A driver travels at $140$ km/h for $20$ min then at $100$ km/h for $40$ min.

(a) How far have they travelled in total?

(b) What is the average speed of the driver on this journey?

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10 A $4$ km length of road has 'average speed' cameras at both ends. The speed limit is $130$ km/h. A motorcycle rider travels the first and fourth kilometres at $120$ km/h and the rest of the way at $150$ km/h.

(a) How much time does it take the rider to travel between the cameras?

(b) What is the average speed of the rider?

(c) Will the camera operator know that the rider broke the law?