

GRADE 8

SPEED, DISTANCE & TIME

Complete Worksheet Pack

6 Practice Worksheets • 6 Answer Keys

Worksheet 1 — Speed, Distance & Time

SPEED — DISTANCE — TIME

Speed = Distance / Time Distance = Speed × Time Time = Distance / Speed

Keep units consistent before calculating.

1. A car travels 180 km in 3 hours. Find its average speed.
2. A cyclist travels 42 km at 14 km/h. How long does the journey take?
3. A train travels at 90 km/h for 2.5 hours. Find the distance travelled.
4. Convert 2.5 hours into hours and minutes.
5. A runner covers 400 m in 80 seconds. Find the speed in m/s.
6. A car travels 75 km in 50 minutes. Find its average speed in km/h.
7. Challenge: Two journeys cover the same 240 km distance. One takes 3 hours and the other 4 hours. Find both speeds and compare them.

Worksheet 2 — Unit Conversions & Rates

1. Convert 72 km/h into m/s.
2. Convert 15 m/s into km/h.
3. A swimmer travels 100 m in 80 seconds. Find the speed in m/s.
4. A delivery van travels 36 km in 45 minutes. Find its speed in km/h.
5. A machine produces 420 items in 7 minutes. Find its production rate per minute.
6. A tap fills 18 litres in 3 minutes. At the same rate, how many litres will it fill in 12 minutes?
7. Challenge: A cyclist's speed increases from 18 km/h to 24 km/h. By what percentage has the speed increased?

Worksheet 3 — Average Speed & Multi-Stage Journeys

1. A car travels 120 km in 2 hours, stops for 30 minutes, then travels another 60 km in 1 hour. Find the total journey time and average speed for the entire journey, including the stop.
2. A cyclist travels 30 km at 15 km/h and returns 30 km at 10 km/h. Find the total time.
3. Using Question 2, find the average speed for the whole 60 km journey.
4. A train travels 150 km at 75 km/h and then 100 km at 50 km/h. Find the total journey time.
5. Explain why average speed is not always found by simply averaging two speeds.
6. A runner completes 5 km in 24 minutes. Find the average speed in km/h.
7. Challenge: A journey consists of 90 km at 60 km/h and 60 km at 40 km/h. Find the overall average speed.

Worksheet 4 — Distance-Time Reasoning

Journey Data

Journey	Distance	Time
A	120 km	2 h
B	180 km	3 h
C	150 km	2.5 h

1. A car travels at a constant 80 km/h. How far does it travel in 45 minutes?
2. A train covers 210 km in 2 hours 20 minutes. Find its average speed.
3. A student walks 1.8 km to school in 24 minutes. Find the average speed in km/h.
4. A bus leaves at 8:15 a.m. and arrives at 10:45 a.m. after travelling 150 km. Find its average speed.
5. Two cyclists start together. Cyclist A travels at 20 km/h and Cyclist B at 16 km/h. How far apart are they after 2.5 hours if they travel in the same direction?
6. If they travel in opposite directions instead, how far apart are they after 2.5 hours?
7. Challenge: A car travels 40 km at 50 km/h and another 40 km at 80 km/h. Which part takes longer and by how many minutes?

Worksheet 5 — Real-Life Problems

1. A flight covers 2,400 km in 3 hours 20 minutes. Find its average speed in km/h.
2. A courier travels 96 km in 1 hour 36 minutes. Find its average speed.
3. A boat travels 54 km downstream in 3 hours. Find its speed. It travels the same distance upstream in 4.5 hours. Find the upstream speed.
4. A person walks for 40 minutes at 4.5 km/h. How far do they walk?
5. A car's fuel efficiency is 15 km per litre. How many litres are needed for a 420 km journey?
6. A journey is planned at 60 km/h for 4 hours. A delay reduces the average speed to 48 km/h. How much shorter is the distance actually travelled?
7. Challenge: A driver must cover 300 km in 4 hours including a 20-minute stop. What driving speed is required while the car is moving?

Worksheet 6 — Speed, Distance & Time Challenge

1. A vehicle travels 90 km at 60 km/h and 150 km at 75 km/h. Find the total time and overall average speed.
2. A runner completes the first half of a 12 km race at 8 km/h and the second half at 12 km/h. Find the total time and average speed.
3. A train leaves at 9:20 a.m. and travels 315 km at an average speed of 90 km/h. Find its arrival time.
4. A cyclist improves their time for a 24 km route from 80 minutes to 64 minutes. Find the percentage decrease in time.
5. A car travels at 72 km/h. How many metres does it travel in 25 seconds?
6. A journey takes 5 hours at 56 km/h. How fast must the vehicle travel to complete the same distance in 4 hours?
7. Challenge: A vehicle travels equal distances at 40 km/h and 60 km/h. Find its overall average speed. Explain why the answer is not 50 km/h.

Answer Key 1 — Speed, Distance & Time

1. 60 km/h.
2. 3 hours.
3. 225 km.
4. 2 hours 30 minutes.
5. 5 m/s.
6. 90 km/h.
7. 80 km/h and 60 km/h; the first journey is 20 km/h faster.

Answer Key 2 — Unit Conversions & Rates

1. 20 m/s.
2. 54 km/h.
3. 1.25 m/s.
4. 48 km/h.
5. 60 items/minute.
6. 72 litres.
7. Increase = 6 km/h; percentage increase = 33.3% approximately.

Answer Key 3 — Average Speed & Multi-Stage Journeys

1. Total time = 3.5 h; total distance = 180 km; average speed ≈ 51.4 km/h.
2. $2\text{ h} + 3\text{ h} = 5\text{ h}$.
3. $60/5 = 12$ km/h.
4. $2\text{ h} + 2\text{ h} = 4\text{ h}$.
5. Because average speed depends on total distance divided by total time, and different speeds may apply for different times or distances.
6. 12.5 km/h.
7. Total distance 150 km; total time $1.5\text{ h} + 1.5\text{ h} = 3\text{ h}$; average speed = 50 km/h.

Answer Key 4 — Distance-Time Reasoning

1. 60 km.
2. 90 km/h.
3. 4.5 km/h.
4. 60 km/h.
5. 10 km apart.
6. 90 km apart.
7. At 50 km/h, 40 km takes 48 min; at 80 km/h it takes 30 min; difference = 18 min.

Answer Key 5 — Real-Life Problems

1. 720 km/h.
2. 60 km/h.
3. Downstream 18 km/h; upstream 12 km/h.
4. 3 km.
5. 28 litres.
6. Planned distance = 240 km; actual distance = 192 km; difference = 48 km.
7. Moving time = 3 h 40 min = $11\frac{2}{3}$ h; required speed ≈ 81.8 km/h.

Answer Key 6 — Speed, Distance & Time Challenge

1. Time = $1.5 \text{ h} + 2 \text{ h} = 3.5 \text{ h}$; total distance = 240 km; average speed $\approx 68.6 \text{ km/h}$.
2. Each half is 6 km; times = 0.75 h and 0.5 h; total = 1.25 h; average speed = 9.6 km/h.
3. Time = 3.5 h; arrival = 12:50 p.m.
4. Decrease = 16 min; percentage decrease = 20%.
5. 500 m.
6. Distance = 280 km; required speed = 70 km/h.
7. For equal distances, average speed = total distance / total time = 48 km/h, not 50 km/h.