



QT Speed / distance / time

1. A train travels 210 miles in 4 hours. Calculate the average speed of the train in miles per hour.

$$\begin{aligned} \text{Speed} &= \frac{\text{Distance}}{\text{Time}} \\ &= \frac{210}{4} = \underline{\underline{52.5 \text{ mph}}} \end{aligned}$$

2. A car travels a distance of 160 miles in 3 hours and 45 minutes. Calculate the average speed of the car. Give your answer in miles per hour, correct to 1 decimal place.

$$\begin{aligned} \text{speed} &= \frac{\text{Dist}}{\text{Time}} \\ &= \frac{160}{3 \frac{45}{60}} \end{aligned}$$

} $46.3768116 \dots$
46.4 mph.

3. A long distance runner runs at 5m/s. How far can the runner travel in one hour? Give your answer in kilometres.

$$\begin{aligned} 5 \text{ m/s} &= 300 \text{ m/min} && (\times 60 \text{ secs} \rightarrow \text{min}) \\ &= 18000 \text{ m/hour} \\ &= \underline{\underline{18 \text{ km/h}}} \end{aligned}$$



4. Xavier leaves his house at 7.30am to travel to work. He drives 45 miles at an average speed of 30mph. What time does Xavier arrive at work?

$$\begin{aligned} \text{Speed} &= \frac{\text{Dist}}{\text{Time}} \\ 30 &= \frac{45}{\text{Time}} \\ \text{Time} &= \frac{45}{30} \end{aligned}$$

→ 1.5 hours
7.30am + 1.5 hours
9.00am.

5. Laiba travels from Leeds to Manchester at an average speed of 56mph. The journey takes 1 hour and 15 minutes.

Zahra makes the same journey in 1 hour and 45 minutes.

(a) Work out Zahra's average speed for the journey.

(b) If Zahra used another route to drive from Leeds to Manchester, how could this affect your answer?

Laiba.

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$56 = \frac{\text{Dist}}{1\frac{15}{60}}$$

$$70 \text{ miles} = \text{Dist}$$

Zahra

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$= \frac{70}{1\frac{45}{60}}$$

(a) Speed = 40 mph.

(b) It could be slower faster depending on route



6. John drives 280 miles from London to Newcastle at an average speed of 50mph for the first 150 miles. At that point he encounters roadworks, and takes a further 2 hours and 5 minutes to complete the rest of the journey. What was John's average speed for the whole journey? Give your answer correct to 1dp.

First 150 m.

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$50 = \frac{150}{\text{Time}}$$

$$\text{Time} = \frac{150}{50}$$

$$= \underline{3 \text{ hours}}$$

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$= \frac{280}{3 + 2\frac{5}{60}}$$

$$= \frac{280}{\frac{55}{60}}$$

$$= 55.0519 \dots$$

55.1 mph.

7. Yusuf goes jogging every morning, and can complete 6 miles in 32 minutes.

(a) How long will it take Yusuf to run 9 miles at the same speed, in minutes?

(b) Yusuf's average speed decreases the further he runs. How does this affect your answer to part (a)?

6 miles.

$$\begin{aligned} \text{Speed} &= \frac{\text{Dist}}{\text{Time}} \\ &= \frac{6}{\frac{32}{60}} \\ &= \underline{11.25 \text{ mph.}} \end{aligned}$$

$$\begin{aligned} \text{Speed} &= \frac{\text{Dist}}{\text{Time}} \\ 11.25 &= \frac{9}{\text{Time}} \\ \text{Time} &= \frac{9}{11.25} \\ &= 0.8 \text{ hours} \end{aligned}$$

$$\text{Time} = 0.8 \times 60$$

$$(a) = \underline{48 \text{ min.}}$$

(b) He would take longer