Hours, Minutes and Seconds: From Decimals to Problem Solving

Westies Workshop · GCSE Number 2.3 Calculator Techniques

Remember: 1 hour = 60 minutes and 1 minute = 60 seconds. To change a decimal part into minutes (or seconds), multiply it by 60. On most scientific calculators the ° ' '' button does this for you.

Section A: Basic conversions

1. Write 3.5 hours in hours and minutes.

2. Write 2.25 hours in hours and minutes.

3. Write 1.8 hours in hours and minutes.

4. Write 6.4 minutes in minutes and seconds.

5. Write 2 hours 45 minutes as a decimal number of hours.

6. Write 3 minutes 27 seconds as a decimal number of minutes.

7. How many minutes are there in 2.65 hours?

8. Use the ° ' '' button to write 3.7375 hours in hours, minutes and seconds.

9. Use the ° ' '' button to write 1.2575 hours in hours, minutes and seconds.

10. Use the ° ' '' button to write 0.0725 hours in minutes and seconds.

11. Write 5 hours 13 minutes 48 seconds as a decimal number of hours.

12. Write 2.4175 minutes in minutes and seconds, to the nearest second.

Section B: Problem solving

Each answer comes out as a decimal that you need to turn into hours, minutes and seconds. Most are not "nice" decimals, so use the ° ' '' button: with the decimal answer on your calculator screen, press ° ' '' to see it in hours (or minutes), minutes and seconds. Press it again to go back to the decimal.

1. Journey (speed, distance, time)

A coach travels 200 km at an average speed of 76 km/h. It leaves at 09:50.
(a) How long does the journey take? Give your answer in hours, minutes and seconds, to the nearest second.
(b) At what time does it arrive, to the nearest minute?

2. Earnings (money)

Maya is paid £10.42 per hour. One week she earns £86.
How long did she work? Give your answer in hours and minutes, to the nearest minute.

3. Filling a tank (volume and units)

A fish tank is a cuboid 80 cm long, 50 cm wide and 60 cm high. It is filled with water at 4.7 litres per minute. How long does it take to fill the tank? Give your answer in minutes and seconds, to the nearest second. (1 litre = 1000 cm^3)

4. Phone battery (percentages)

A phone battery charges at 1.7% per minute. It is at 24% now.
How long will it take to reach 100%? Give your answer in minutes and seconds, to the nearest second.

5. Sharing the driving (ratio)

Ali and Ben share 6.3 hours of driving in the ratio 3 : 4.
How long does each of them drive? Give your answers in hours and minutes.

6. Light from the Sun (standard form)

The Sun is 1.496×10^8 km from the Earth. Light travels at 2.998×10^5 km per second.
How long does light from the Sun take to reach the Earth? Give your answer in minutes and seconds, to the nearest second.

7. Cross-country (averages)

Four runners finish a race in 12.4, 13.05, 11.8 and 12.83 minutes.
Work out their mean time in minutes and seconds.

8. Cooking a turkey (proportion)

A turkey needs 25 minutes per 500 g plus an extra 20 minutes. A turkey weighs 4.35 kg and goes in the oven at 10:45.
(a) How long does it cook, in hours, minutes and seconds?
(b) At what time will it be ready?

9. A long film (fractions)

A film lasts 2 3/4 hours. Jo has watched 3/7 of it.
How much of the film is left? Give your answer in hours, minutes and seconds, to the nearest second.

10. Walking to school (speed, units)

Kim walks 3.8 km to school at 4.6 km/h.
How long does the walk take? Give your answer in minutes and seconds, to the nearest second.

11. Drone flight (Pythagoras)

Check with your teacher that you have covered Pythagoras before trying this one.

A drone flies in a straight line from one corner of a rectangular field to the opposite corner. The field is 125 m by 84 m. The drone flies at 2.4 m/s.
How long does the flight take? Give your answer in minutes and seconds, to 1 decimal place of a second.

12. A faster train (reverse percentages)

Check with your teacher that you have covered reverse percentages before trying this one.

After a 15% increase in speed, a train journey takes 2 hours 15 minutes.
How long did the journey take before the increase? Give your answer in hours, minutes and seconds.

Section C: Think about it

1. Spot the mistake

Sam says, “1.5 hours is 1 hour 50 minutes.”
Explain Sam’s mistake and give the correct time.

2. Which is longer?

Which is longer: 2.4 hours or 2 hours 25 minutes? Show your working.