# Solve problems involving time and the calendar

**1** **a)** List the months that have exactly 30 days.

_____

_____

**b)** List the months that have exactly 31 days.

_____

_____

**c)** Complete the table showing the seasons in South Africa, assuming it is not a leap year.

| Season | Months | Total number of days |
|--------|--------|----------------------|
| Autumn | March, April, May | |
| Winter | June, July, August | |
| Spring | September, October, November | |
| Summer | December, January, February | |

**d)** What season would be different if it were a leap year?

**2** Here is part of a calendar for 2021.

**March 2021**

| Sun | Mon | Tue | Wed | Thur | Fri | Sat |
|-----|-----|-----|-----|------|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

**a)** What is the date of the third Sunday in March 2021? _____

**b)** How many Wednesdays will there be in March 2021? _____

**c)** What is the date of the first Saturday in **April** 2021? _____

**d)** What day of the week is 26 February 2021? _____

**3** There are 24 hours in a day.

**a)** Show, without using a calculator, that there are 168 hours in a week.

**b)** The average working week in the UK is 42.5 hours.

Use a calculator to work out what percentage of the full week people spend at work. Give your answer to the nearest whole per cent.

☐ %

**c)** Ron spends 30% of each week asleep.

How many hours is this? Give your answer to the nearest hour.

☐ hours

**d)** Without using a calculator, work out how many hours there are in June.

☐ hours

**4** There are 60 minutes in an hour and 60 seconds in a minute.

**a)** Work out how many seconds there are in an hour.

    [    ] seconds

**b)** Work out how many seconds there are in three-quarters of an hour.

    [    ] seconds

**c)** Tick the card that is a good estimate for the number of seconds in a day.

    | 8,000 |    | 80,000 |    | 800,000 |    | 8,000,000 |

    Explain how you chose your answer.

**5** **a)** A film starts at 8:40 pm.

    The film is two and a half hours long.

    At what time does the film finish?

    _____

**b)** At another cinema, a different film finishes at 10:15 pm.

    This film is 100 minutes long.

    At what time did this film start?

    _____

**6** In this question, give your answers in standard form.

Light travels at $3 \times 10^8$ m every second.

How far does light travel in these times?

**a)** 1 minute

    _____ m

**b)** 1 hour

    _____ m

**c)** 1 day

    _____ m

**d)** 1 week

    _____ m

**e)** a leap year

    _____ m

**7**

> 6! (called '6 factorial') means $6 \times 5 \times 4 \times 3 \times 2 \times 1$

**a)** Show that 4! hours is the same as 1 day.

**b)** How many hours is the same as 5! minutes?

    [    ] hours

**c)** Is 7! minutes more or less than a week? _____

    Explain your answer.

    _____

    _____