1. *Level 1 – 2 [Length: 4 minutes]*

Convert the following into minutes

(a) Three-quarters of an hour [2]

(b) One and a half hours [2]

2. *Level 1 – 2 [Length: 4 minutes]*

Two runners had a race. They both started the race at exactly 8:57 am. One runner finished the race at 10:00 am.

(a) Find the time taken in minutes for this runner to finish the race. [2]

The other runner finished the race at 9:51 am.

(b) Find the time taken in minutes for this runner to finish the race. [2]

3. *Level 3 – 4 [Length: 5 minutes]*

A train starts its journey at 11:53 am and travels for 45 minutes.

(a) Find its arrival time. [2]

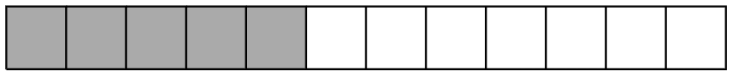
Its return journey takes 3 minutes longer. It arrives back at its starting point at 2:07 pm.

(b) Find the time when the train started its return journey. [3]

4. *Level 5 – 6 [Length: 4 minutes]*

A computer program takes three minutes to be installed onto a computer. A status bar shows how much progress has been made. This is shown in the diagram below.

Installing...



The squares become shaded at equal time intervals from left to right as the program is installed. When all squares are shaded the program is installed.

Find the minimum amount of time that has passed according to the diagram above.

5. *Level 7 – 8 [Length: 6 minutes]*

The table below shows the flight times between pairs of cities and the time zone of each city.

Departure City	Time Zone	Arrival City	Time Zone	Flight Time
London	UTC+0	Osaka	UTC+9	13 hours
Dubai	UTC+4	Bangkok	UTC+7	6 h 15 min
Frankfurt	UTC+1	New York	UTC-5	8 h 35 min

(a) A flight leaves London at 0100 local time. Find the time in Osaka when it arrives. [2]

(b) A flight arrives in Bangkok at 1315 local time. Find the time in Dubai when it left. [2]

(c) A flight leaves Frankfurt at 1430 local time. Find the time in New York when it arrives. [2]

1. (a) 45 minutes

(b) 90 minutes

2. (a) 63 minutes

(b) 54 minutes

3. (a) 12:38 pm

(b) It takes 48 minutes to return. So it leaves at 1:19 pm.

4. Each bar represents $\frac{180}{12} = 15$ seconds.

So the minimum amount of time that has passed is $5 \times 15 = 75$ seconds.

5. (a) $0100 + 13\text{h} + 9\text{h} = 2300$

(b) $1315 - 6\text{h}15\text{m} - 3\text{h} = 0400$

(c) $1430 + 8\text{h}\,35\text{m} - 6\text{h} = 1705$