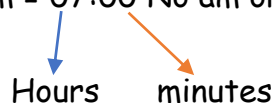# Summer term w/b 6th July 2020

| **12 and 24 hour clocks** |
|---|
| When you tell time using the 12 hour clock you need to state whether it is am or om to know whether it is morning or afternoon. When you use the 24 hour clock then you don't need am or pm. The 24 hour clock is digital time:

7am = 07:00 No am or pm and the zeroes are important.

   Hours   minutes

7.30am = 07:30 (note the one point changes to a colon for the 24 hours clock)
11.35am = 11:35
This is relatively easy until you go past midday – this is when the 24 hours can be seen:

1pm = 13:00 (thirteen hundred hours)
2.30pm = 14:30 (fourteen thirty) – you basically add 12 to the hours!
NB: midnight is NOT 24:00 but 00:00 – the start of a new day. |
| See the attached tables converting times between 12 and 24 hour clocks.
Two levels of difficulty.
Just remember:
   1) 24 hour clock uses a colon and the 12 hour clock just a point to separate hours and minutes.
   2) 12 hour clock uses am or pm and the 24 hour clock doesn't.
   3) 24 hour clock has 2 places for its hours e.g. 1am = 01:00 and 1pm = 13:00.
   4) To convert between the 2 times in the afternoon just have 12 added to them to make them 24hour (NOT the morning).
   5) |

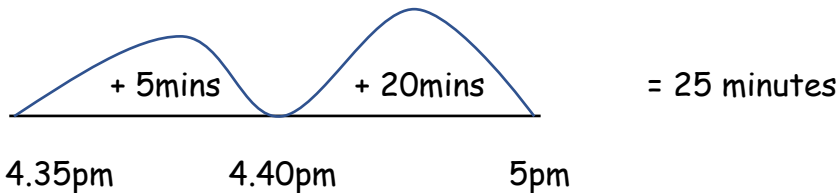| **Number bonds to 60** |
|---|
| It is important in time to be able to calculate number bonds to 60 ass there are 60 minutes in an hour e.g:

45 + 15 = 60
You can use a number line to help you with these e.g. |

+ 5   + 10   5 + 10 = 15

45   50   60
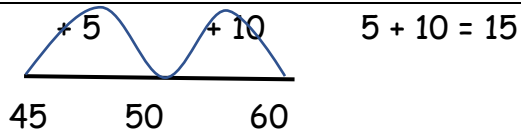
This can then be applied to calculating time to the next hour e.g.

4.35pm - How many minutes to 5.00am?

+ 5mins   + 20mins   = 25 minutes

4.35pm   4.40pm   5pm

Now try these:

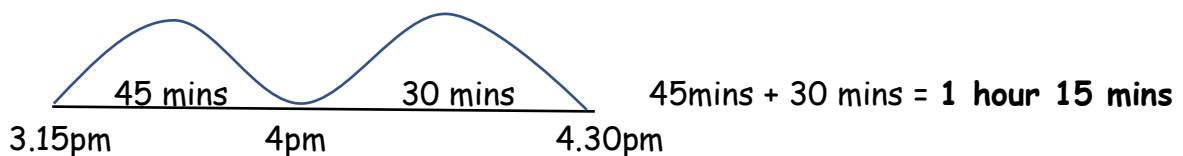| Number bonds to 60:	Use number bonds to the next hour:
1) 25 + _____ = 60	1) 3.30pm + _____ = 4pm
2) 32 + _____ = 60	2) 2.25pm + _____ = 3pm
3) 47 + _____ = 60	3) 12.37pm + _____ = 1pm
4) 18 + _____ = 60	4) 7.29am + _____ = 8am
5) 38 + _____ = 60	5) 8.15am + _____ = 9am

Time differences

Hours change:

What is the difference between these two times? (8.15am and 11.15am).

8 + 3 = 11 so the answer is **3 hours**. Minutes are not affected as they are the same (15).
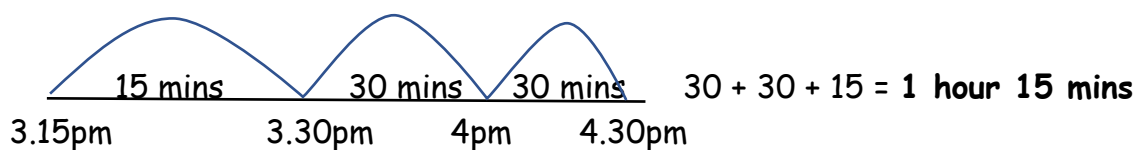
Hours and minutes change:

Number lines can be really useful for this e.g.

What is the difference between 3.15pm and 4.30pm?

45 mins   30 mins   45mins + 30 mins = **1 hour 15 mins**

3.15pm   4pm   4.30pm

OR smaller steps:

15 mins   30 mins   30 mins   30 + 30 + 15 = **1 hour 15 mins**

3.15pm   3.30pm   4pm   4.30pm

It is important for children to understand that it is a number bond to 60 (because there are 60 minutes in an hour).

Find the difference between the following times:

Task 1: (only hours change)	Task 2: (hours and minutes change)
1) 4.30pm and 11.30pm	1) 4.15am and 6.20am
2) 2 o'clock and 8o'clock in the afternoon.	2) 06:10 and 09:20
3) 13:00 and 20:00	3) 8.10pm and 10.30pm
4) 3.15am and 7.15am	4) 13:20 and 15:45
5) 10.30am and 2.30pm	5) 20:55 and 23:10

Calculating end times

Example 1:

2.30pm. What time will it be in 2 hours? Add the hours to the hour side:

2.30pm

2 + 2 = **4.30pm**
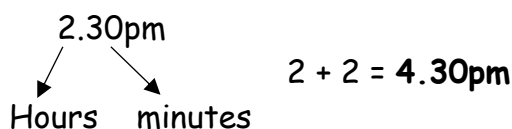
Hours   minutes

OR you could add the hours on a number line:

1 hr   1 hr

2.30pm   3.30pm   4.30pm
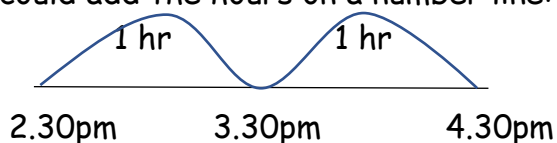
Example 2:

2.30pm. What time will it be in 45 minutes?

If it crosses the boundary in to the next hour then it is best to use a number line. Go to the next hour first (using those number bonds to 60 again) then add the remaining minutes.

+30mins   +15mins   It will be **3.15pm**.

2.30pm   3pm   **3.15pm**

When adding hours AND minutes then add the hours first then the minutes.

Now try these:	
1) 12.30am + 2 hours	1) 2.00pm + 2 hours 30 mins
2) 1.30 pm + 3 hours	2) 9.30am + 1 hour 15mins
3) 7.15am + 4 hours	3) 5.15pm + 3 hours 15mins
4) 8.45pm + 5 hours	4) 4.30pm + 2 hours 45 mins
5) 21:00 + 2 hours	5) 11.30am + 1 hour 20 mins

Calculating start times

The opposite to calculating the end times. You are given a time and asked what time it was before e.g.
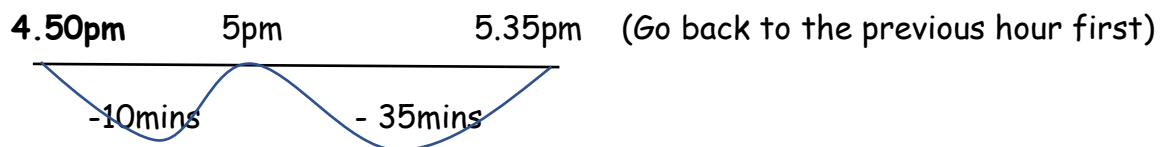
Example 1:

4.50am. What was it 3 hours before?

Again, you can just take the hours off: 4 – 3 = **1.50am** (minutes stay the same).

Example 2:

5.35pm. What was it 45 minutes ago?

Again, it is sometimes best to use a number line (working backwards):

4.50pm   5pm   5.35pm   (Go back to the previous hour first)

-10mins   - 35mins

You can always check your answer by adding 45 mins to 4.50pm and you should get 5.35pm.

When subtracting hours AND minutes then subtract the hours first then the minutes.

Now try these:	
1) 11.30am - 2 hours	1) 3.00pm - 2 hours 30 mins
2) 9.30 pm - 3 hours	2) 9.30am - 1 hour 15mins
3) 7.15am - 4 hours	3) 5.15pm - 3 hours 15mins
4) 8.45pm - 5 hours	4) 4.30pm - 2 hours 15 mins
5) 21:00 - 2 hours	5) 11.30am - 1 hour 20 mins

ANSWERS:

Number bonds to 60

Number bonds to 60:	Use number bonds to the next hour:
1) 25 + 35 = 60	1) 3.30pm + 30 mins = 4pm
2) 32 + 28 = 60	2) 2.25pm + 35mins = 3pm
3) 47 + 13 = 60	3) 12.37pm + 23mins = 1pm
4) 18 + 42 = 60	4) 7.29am + 31mins = 8am
5) 38 + 22 = 60	5) 8.15am + 45mins = 9am

Time differences

Task 1: (only hours change)	Task 2: (hours and minutes change)
1) 4.30pm and 11.30pm = 7 hours	1) 4.15am and 6.20am = 2hrs 15min
2) 2 o'clock and 8o'clock in the afternoon = 6 hours	2) 06:10 and 09:20 = 3hrs 10min
3) 13:00 and 20:00 = 7 hours	3) 8.10pm and 10.30pm = 2hrs 20min
4) 3.15am and 7.15am = 4 hours	4) 13:20 and 15:45 = 2hrs 25mins
5) 10.30am and 2.30pm = 4 hours	5) 20:55 and 23:10 = 2hrs 15min

Calculating end times

1) 12.30am + 2 hours = 2.30am	1) 2.00pm + 2 hours 30 mins = 4.30pm
2) 1.30 pm + 3 hours = 4.30pm	2) 9.30am + 1 hour 15mins = 10.45am
3) 7.15am + 4 hours = 11.15am	3) 5.15pm + 3 hours 15mins = 8.30pm
4) 8.45pm + 5 hours = 1.45am	4) 4.30pm + 2 hours 45 mins = 7.15pm
5) 21:00 + 2 hours = 23:00	5) 11.30am + 1 hour 20 mins = 12.50pm

Calculating start times

1) 11.30am - 2 hours = 9.30am	1) 3.00pm - 2 hours 30 mins = 12.30pm
2) 9.30pm - 3 hours = 6.30pm	2) 9.30am - 1 hour 15mins = 8.15am
3) 7.15am - 4 hours = 3.15am	3) 5.15pm - 3 hours 15mins = 2pm
4) 8.45pm - 5 hours = 3.45pm	4) 4.30pm - 2 hours 15 mins = 2.15pm
5) 21:00 - 2 hours = 19:00	5) 11.30am - 1 hour 20 mins = 10.10am