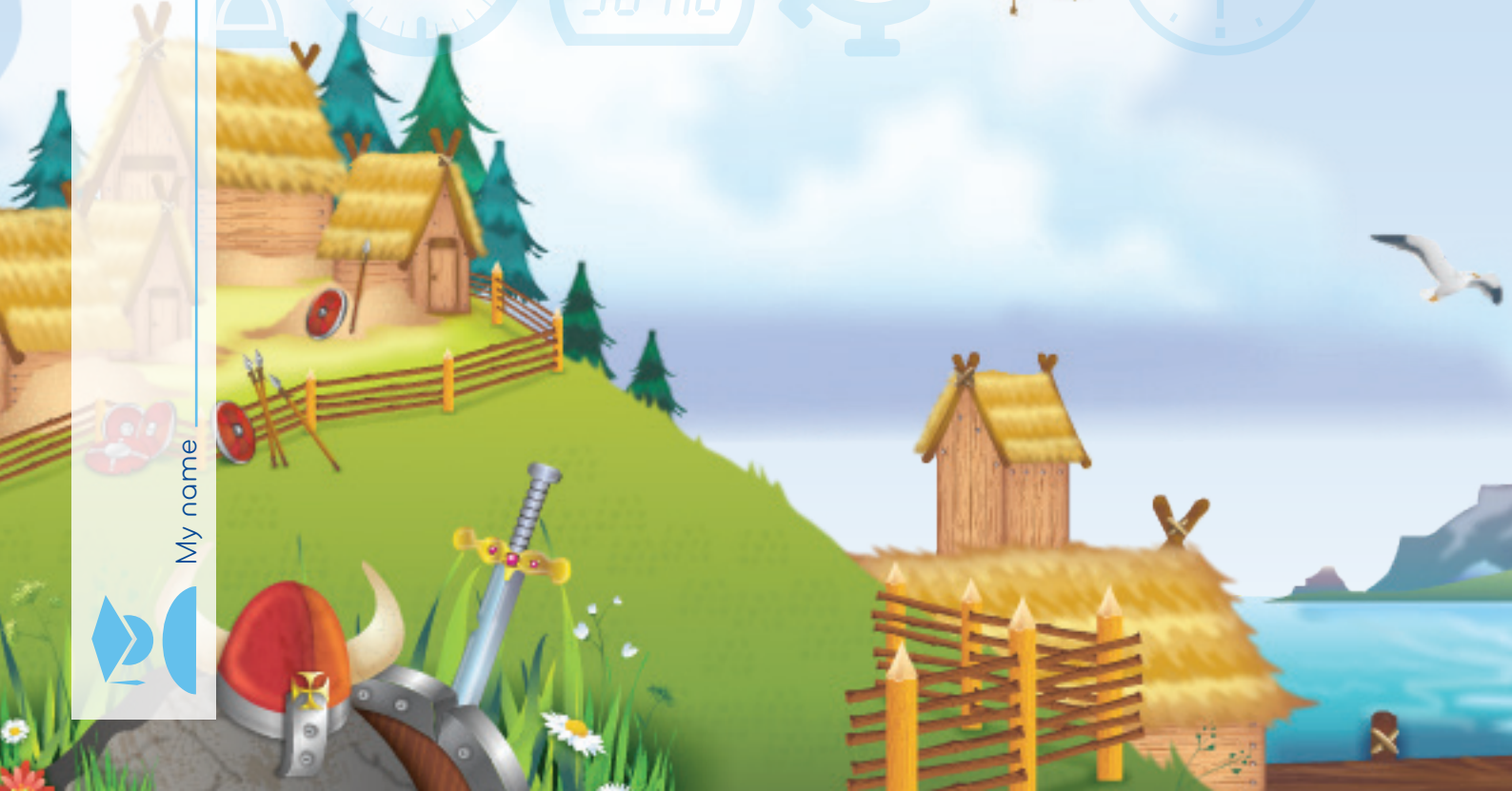
Mathletics

Series E Student

Time



My name

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Series E – Time

Contents

Series Author:

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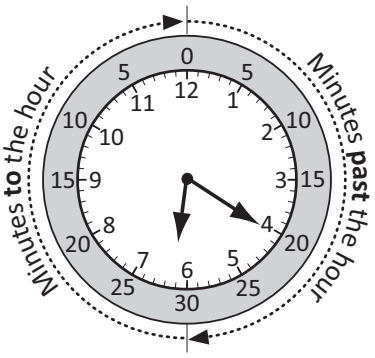
Telling time – five minute intervals past the hour

It takes 5 minutes for the minute hand to move from one number to the next. The time shown on this clock is 20 minutes past 6.

Remember – the minute hand is the longer one.



20 past 6

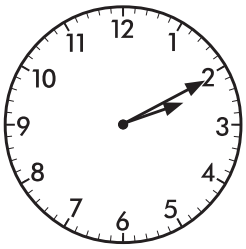
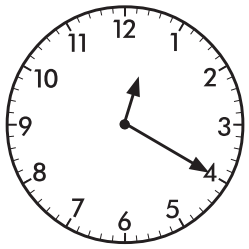
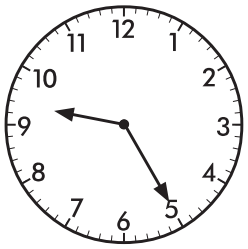
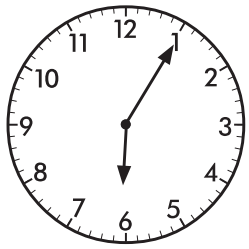
1 **Write the number of minutes it takes the minute hand to move from the following:**

a 8 to 12 ____ **b** 5 to 7 ____ **c** 2 to 4 ____

d 11 to 3 ____ **e** 6 to 1 ____ **f** 5 to 10 ____

2 **Connect each time to the matching clock face:**

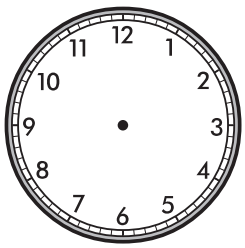
25 minutes past 9 | 10 minutes past 2

20 minutes past 12 | 5 minutes past 6

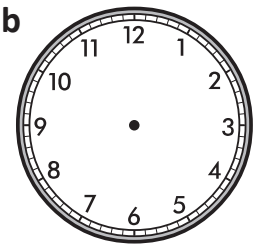
3 **Draw the hour and minute hands on each clock to show the correct time:**

a



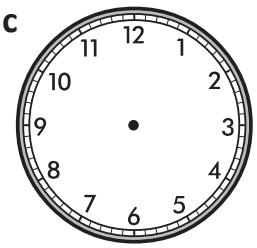
5 minutes past 6

b



20 minutes past 3

c

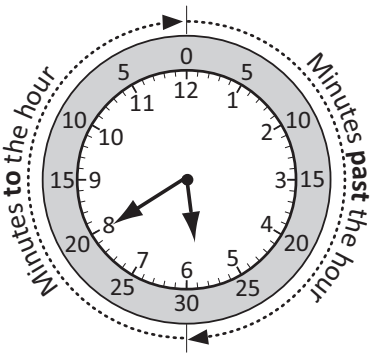


10 minutes past 9

Telling time – five minute intervals to the hour

When the minute hand has passed 30 instead of saying the number of minutes **after** the hour, you can say the number of minutes **before** the next hour.

20 to 6



1 Label the clocks:

a

___ minutes to ___

b

___ minutes to ___

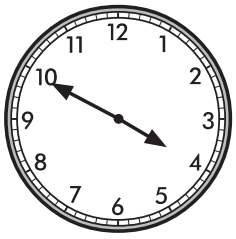
c

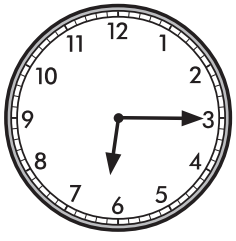
___ minutes to ___

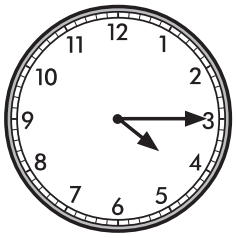
d

___ minutes to ___

2 Connect each clock to its time label with a line.







15 past 4

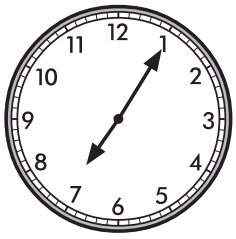
20 to 3

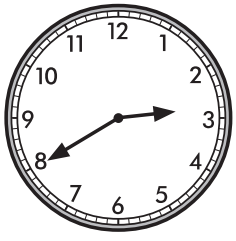
10 to 4

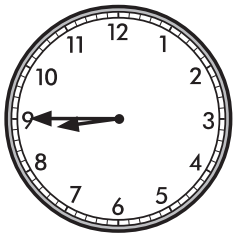
5 past 7

15 to 9

15 past 6





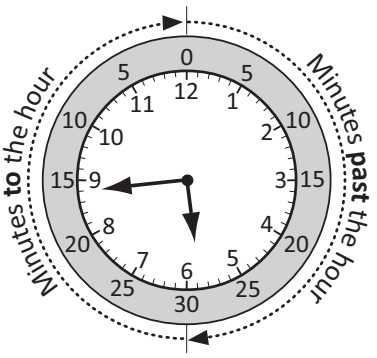


Telling time – to the nearest minute

Each small division on a clock represents 1 minute.

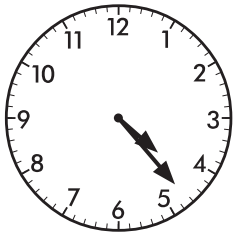
As with telling the time to the nearest 5 minutes, we say 'minutes past' the last hour for times up to 30 minutes after the hour, and 'minutes' to the next hour for the 30 minutes coming up to the next hour.

This clock shows '16 minutes to 6'.



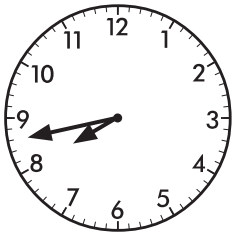
1 **Write the time shown on the clock face to the nearest minute.**

a



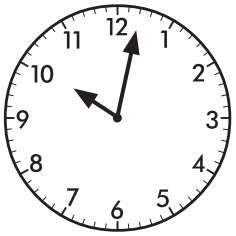
_____ minutes past _____

b



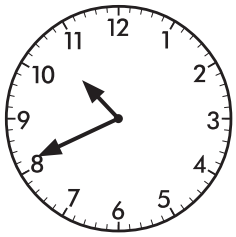
_____ minutes to _____

c



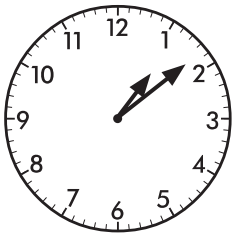
_____ minutes past _____

d



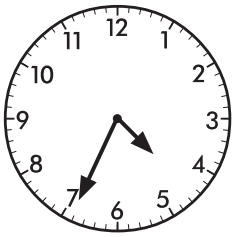
_____

e



_____

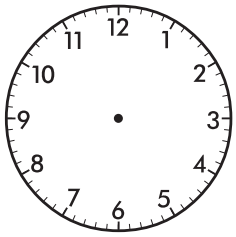
f



_____

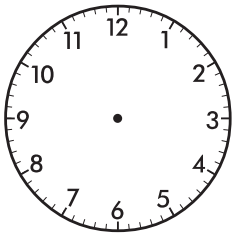
2 **Draw the hands on the clock face to show the time below:**

a



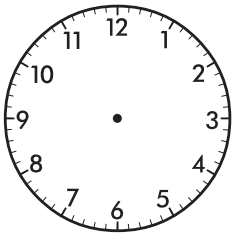
9 minutes past 12

b



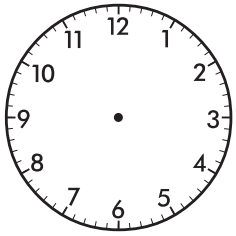
21 minutes to 8

c



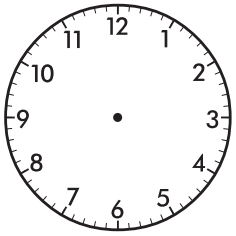
27 minutes past 2

d



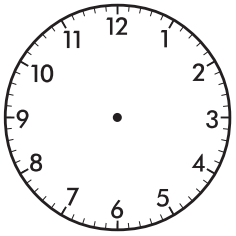
14 minutes past 9

e



6 minutes to 12

f



17 minutes to 6

Telling time – digital

Digital time is always read as minutes past the hour.

This digital time could be read as 24 minutes past 8 *or* eight twenty four.

1 **Write the times that these digital clocks are showing:**

a

____ past ____

b

____ past ____

c

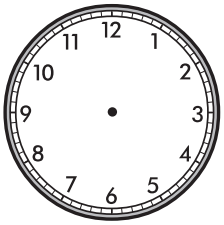
____ past ____

d

____ past ____

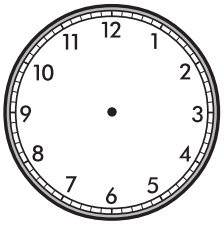
2 **Draw the times on the clock faces and show the digital time below:**

a half past nine



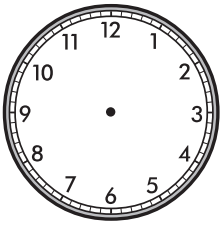
__ __ : __ __

b twenty past one



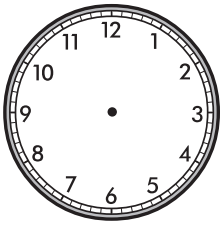
__ __ : __ __

c ten past four



__ __ : __ __

d quarter past six

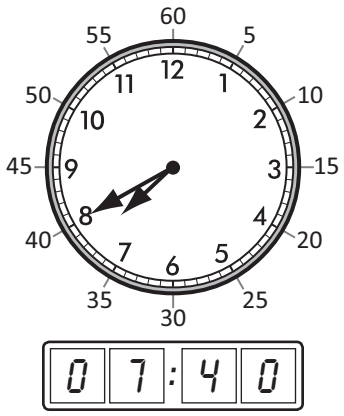


__ __ : __ __

3 **Complete the table to match how we say digital time to what it means:**

	Digital time	How we say it	What it means
a		*six oh nine*	
b			
c			
d			

Telling time – digital



In digital time, when it is later than half past the hour, we can tell how long it is until the next o'clock.

This time says 7:40 which means after another 20 minutes it will be 8:00. This makes sense because there are 60 minutes in an hour. 40 + 20 = 60

7:40 + 20 minutes = 8:00

4 **How many minutes until the next o'clock?**

a 6:50 + _____ minutes = 7:00

b 2:40 + _____ minutes = 3:00

c 1:35 + _____ minutes = 2:00

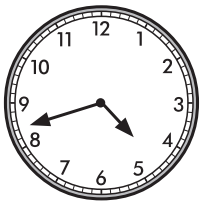
d 9:45 + _____ minutes = 10:00

e 4:55 + _____ minutes = 5:00

f 10:50 + _____ minutes = 11:00

5 **Write the times shown on the clocks in digital form then calculate how many minutes until the next hour. The first one has been done for you.**

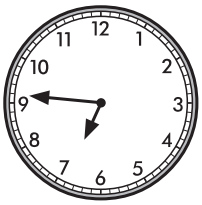
a



04:42

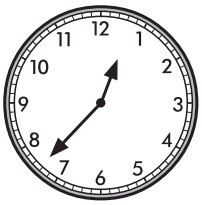
18 minutes to *5*

b



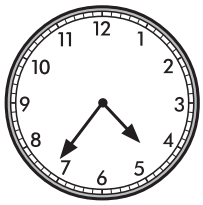
___ minutes to ___

c



___ minutes to ___

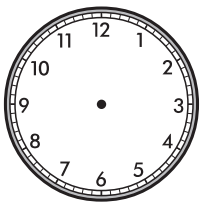
d



___ minutes to ___

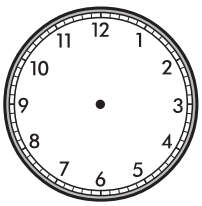
6 **Read how many minutes there are until the next hour. Show this time on the clock face and in digital form.**

a



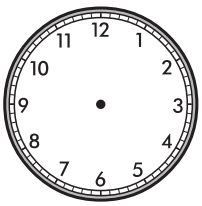
16 minutes to 3

b



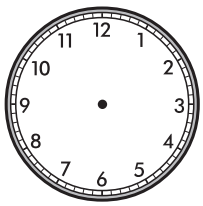
20 minutes to 8

c



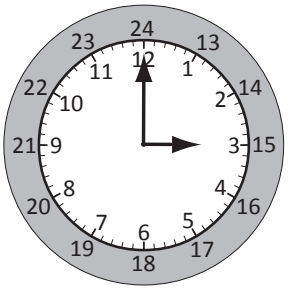
25 minutes to 10

d



17 minutes to 8

Measuring time – 24-hour time

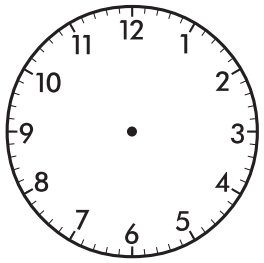
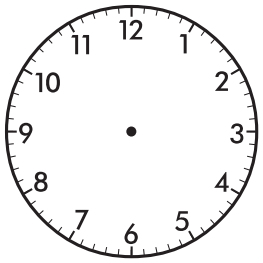
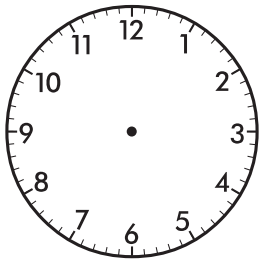
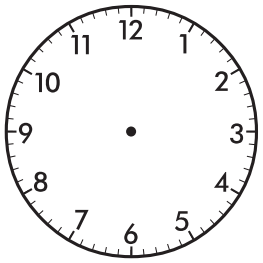


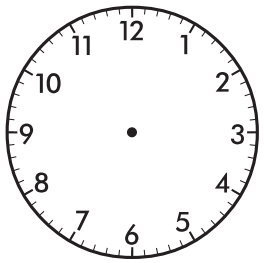
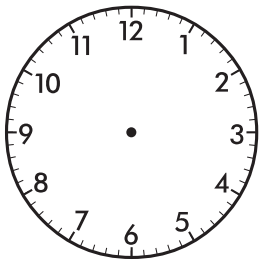
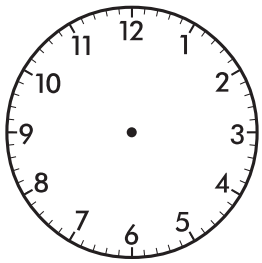
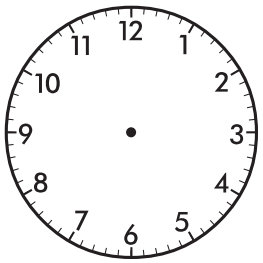
Time can be measured using 12-hour time, using am/pm, or 24-hour time.

3:00 pm = 15:00

When writing digital time, a zero is sometimes placed before single-digit hours, so, for example, both 07:00 and 7:00 are correct. When showing 24-hour time a colon (:) is usually put between the hours and minutes (eg 14:00), though you may sometimes see it without (eg 1400).

1 **Complete the table with the correct analogue, digital and 24-hour times.**

			
	1:00 pm	9:30 pm	
08:35			18:15

			
2:22 pm	1:18 am		
		20:00	21:04

Measuring time – 24-hour time

2 **Convert these 24-hour times to digital times:**

a 04:00 = 4:00 am

b 15:00 =

c 13:30 =

d 16:05 =

e 09:20 =

f 08:25 =

3 **Convert these digital times into 24-hour time:**

a 9 am =

b 10 pm =

c 7:30 am =

d 2:15 pm =

e 5:35 am =

f 7:25 pm =

4 **It is 17:00 and your favourite TV show is due to start in half an hour. Show the starting time in digital form:** :

DVD recorders use 24-hour time to record programs.

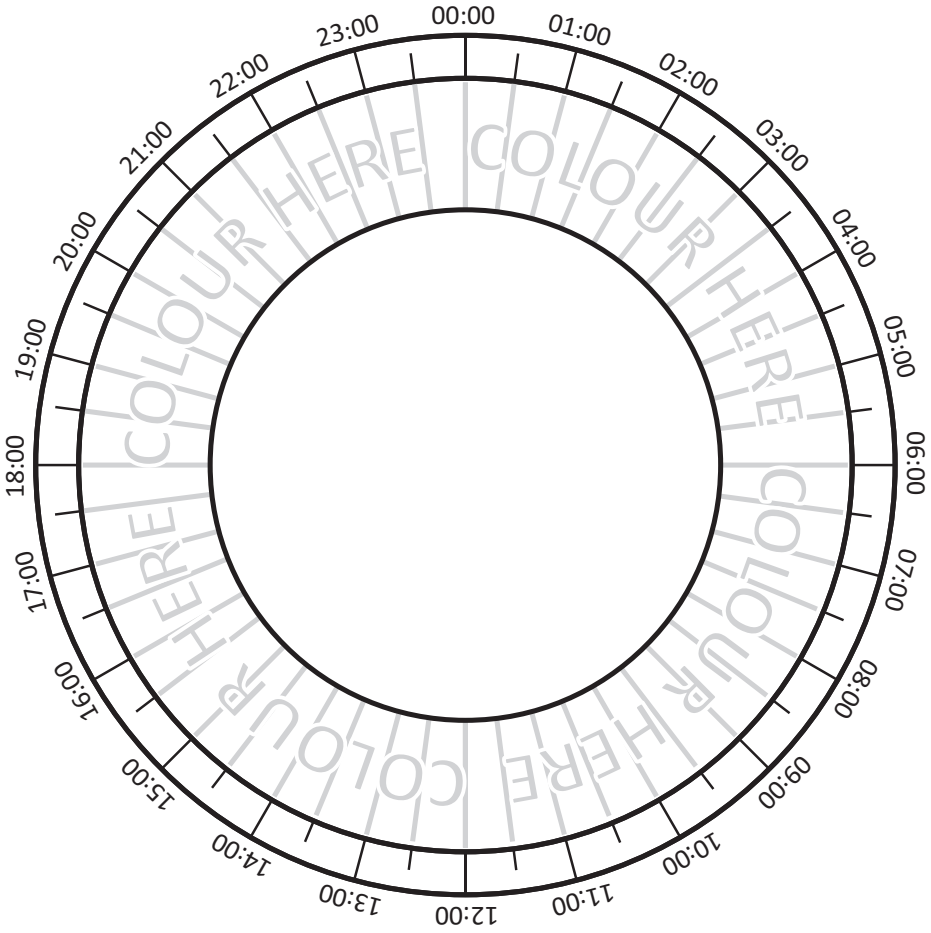
5 **Minh wants to record some programs on her DVD.**
Enter the start and finish times of each program in 24-hour time.
How long is each show?

Channel 4	
9:00 am	Science Show
10:00 am	Behind the News
11:00 am	Weather Report
12:00 pm	Midday News
1:30 pm	My Name is Greg
2:30 pm	Movie: Solaris
4:00 pm	4 pm News
5:00 pm	Smartline
6:00 pm	Current Affairs
8:00 pm	Movie: Chinatown
9:45 pm	Late News

Program	Start	Finish	Length
Science Show	09:00	10:00	1 hour
Behind the News			
Movie: Solaris			
4 pm News			
Smartline			
Movie: Chinatown			

Measuring time – 24-hour time

6 **Carla is training for a marathon. Complete the chart below to show how she spends her day. Colour each of the segments in the chart using a different colour to show the duration of each activity below.**



Colour	Time/Activity
☐	5:00 am–6:45 am Morning run
☐	6:45 am–8:00 am Breakfast, get ready for work
☐	8:00 am–8:45 am Drive to work
☐	8:45 am–5:00 pm Work
☐	5:00 pm–5:45 pm Drive home
☐	5:45 pm–7:00 pm Gym session
☐	7:00 pm–7:30 pm Shower
☐	7:30 pm–8:15 pm Have dinner
☐	8:15 pm–10:00 pm Watch TV and read
☐	10:00 pm–5:00 am Sleep

a How long is Carla's morning run?

_____

b How long is Carla's work day?

_____

c How much time does Carla have between dinner and bed time?

_____

Time memory

apply

Getting ready

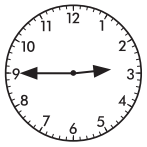
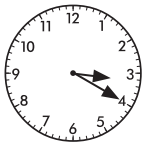
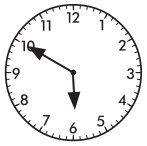
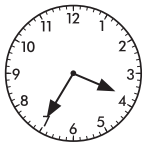
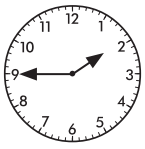
This is a game for 2 players. You will need only 1 copy of this page. Cut out the set of cards below.

copy

What to do

Shuffle the cards well, then lay them out face down in a random spread.

Take turns to turn over two cards at a time to find a matching pair. A pair matches if they both have the same time on them. Keep playing until all the cards are gone. The player with the most pairs wins.

18 minutes to 4	03:42	02:45	
30 minutes later than 1:15	01:45		03:20
01:35		17:50	
02:27	3 minutes until two thirty	20 minutes past 10	10:20
Half past 9	09:30	03:35	
12:30	45 minutes earlier than 1:15		01:45

What to do next

Add to this set of cards by writing your own matching time statements.

Broken wrist watch

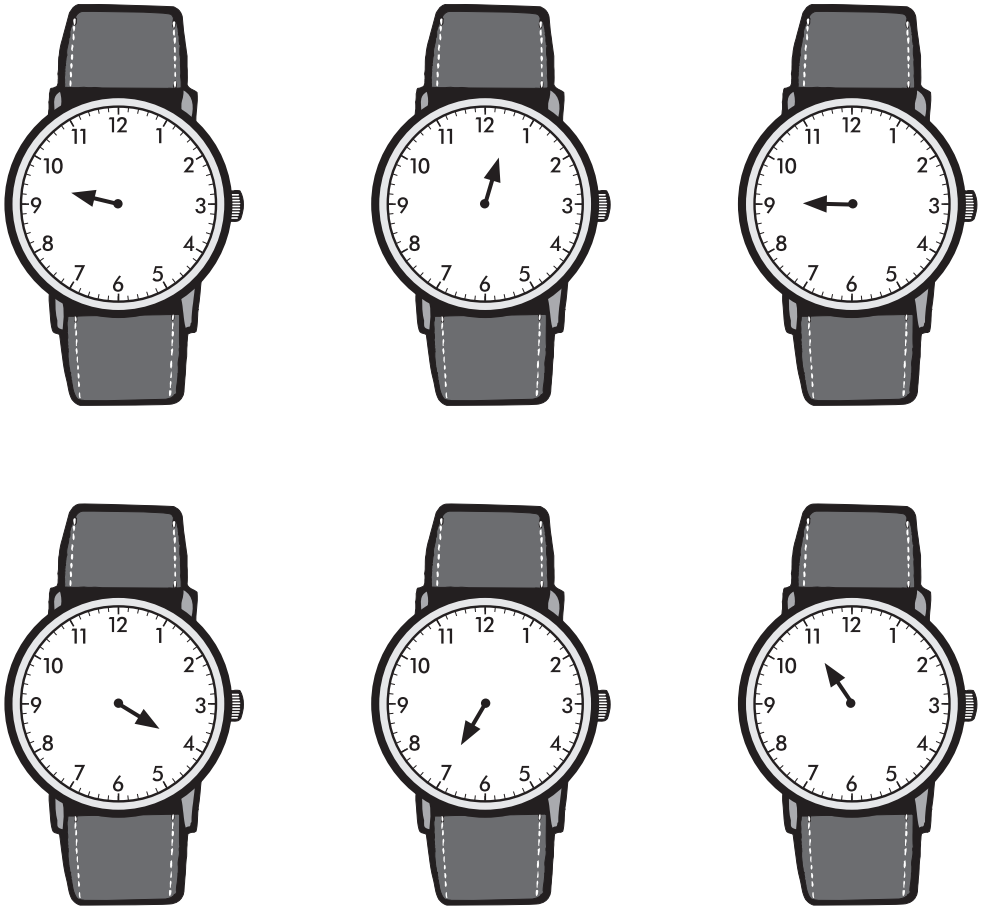
solve

Getting ready

Holly has a wrist watch that only has an hour hand. The minute hand has fallen off. Although it is broken, Holly can still tell the time.

What to do

Figure out the time of each of Holly's activities.
Draw in the minute hand.



a Holly gets up for school at _____.

b She starts class at _____.

c Her break is at _____.

d Lunch is at _____.

e After school swimming training is at _____.

f Bedtime is at _____.

Measuring time – am and pm

'am' is short for 'ante meridiem'. In Latin this means 'before midday'. We use 'am' for any time between midnight and midday.

'pm' is short for 'post meridiem'. In Latin this means 'after midday'. We use 'pm' for any time between midday and midnight.

1 **Write am or pm in each sentence:**

a Jamie walks his dog every morning at 6:30 _____ before breakfast.

b Natalie has a snack after school at 4:00 _____.

c Just after midnight at 2:15 _____, we heard a noise outside.

2 **Complete this table by writing the times in digital from. Circle am or pm in the last column:**

a Ten past three in the morning		am / pm
b Quarter to nine at night		am / pm
c Twenty to two after midnight		am / pm
d Daytime, eighteen minutes past one		am / pm
e Seven minutes to twelve at night		am / pm

3 **Add two hours to each of these digital times:**

a 9:52 am _____ **b** 3:15 pm _____ **c** 11:30 am _____

d 1:42 pm _____ **e** 11:15 am _____ **f** 10:48 pm _____

4 **How many hours from:**

a 4:00 pm to 7:00 pm _____ hours **b** 5:00 pm to 11:00 pm _____ hours

c 9:00 am to 1:00 pm _____ hours **d** 8:30 am to 6:30 pm _____ hours

Measuring time – time facts

It is important to learn these time facts:

- 60 seconds = 1 minute
- 60 minutes = 1 hour
- 24-hours = 1 day
- 7 days = 1 week
- 14 days = 1 fortnight
- 52 weeks = 1 year
- 12 months = 1 year
- 365 days = 1 year
- 366 days = 1 leap year

1 **How many days are there in:**

a 2 weeks = _____ days **b** 1 leap year = _____ days **c** 48 hours = _____ days

2 **Calculate the number of hours in:**

a 120 minutes = _____ hours **b** 2 days = _____ hours

c 180 minutes = _____ hours **d** 1 week = _____ hours

3 **Write these minutes as hours and minutes:**

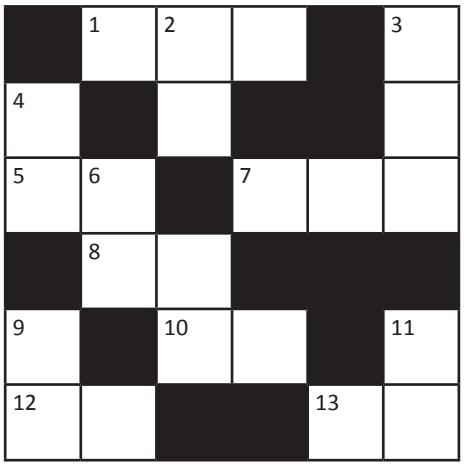
a 120 minutes = _____ hours _____ minutes **b** 150 minutes = _____ hours _____ minutes

c 200 minutes = _____ hours _____ minutes **d** 85 minutes = _____ hours _____ minutes

4 **Use what you know about time relationships to complete this cross number puzzle:**

Across

1 Days in a leap year
5 Weeks in a year
7 Hours in 10 days
8 Hours in $\frac{1}{2}$ day
10 Minutes in $\frac{3}{4}$ hour
12 Hours in 2 days
13 Minutes in 1 hour



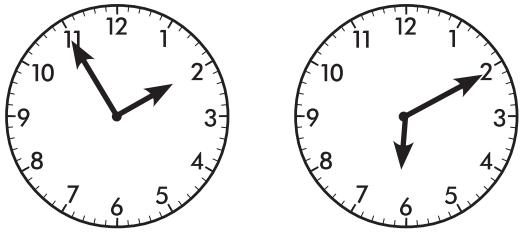
Down

2 Seconds in 1 minute
3 Minutes in 1 hour and 40 minutes
4 Minutes in $\frac{1}{4}$ hour
6 Days in 3 weeks
9 Days in a fortnight
11 Minutes in $\frac{1}{2}$ hour

Measuring time – time trials

Elapsed time is how much time has passed between 2 different times. To work out the difference between 2 times, count the hours and then the minutes.

1:55 pm to 6:10 pm



1:55 to 5:55 = 4 hours

5:55 to 6:10 = 15 minutes

Total elapsed time is 4 hours and 15 minutes.

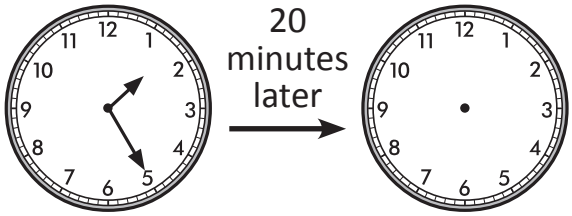
1 **Practise counting on:**

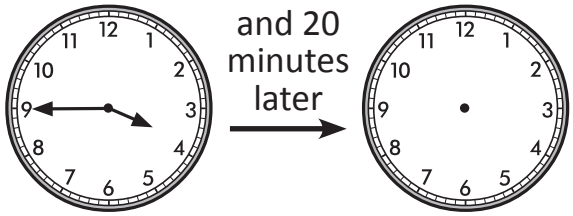
a in 5 minutes 2:45 ☐ 2:55 3:00 ☐ ☐ ☐

b in 10 minutes 5:19 5:29 ☐ 5:49 ☐ ☐ ☐

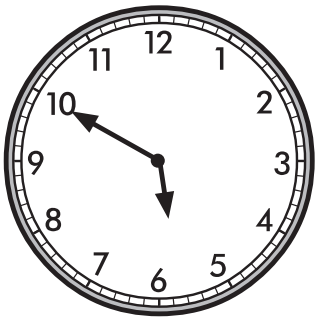
c in 15 minutes 9:40 9:55 ☐ ☐ ☐ ☐ ☐

2 **Show the new times on the clocks:**

a 

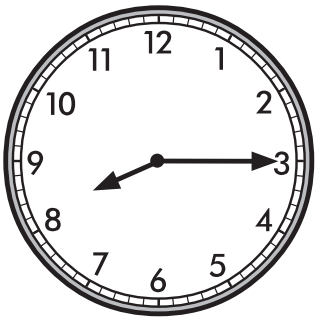
b 

3 **How much time has passed?**



Start

Elapsed time: ☐



Finish

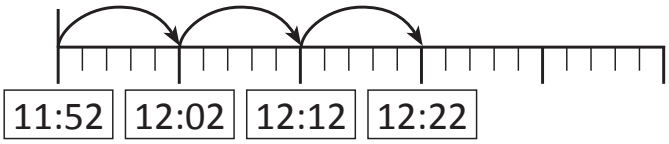
Measuring time – time trials

We can use a timeline to help us with elapsed time problems.

Problem: Robbie got on the bus at 11:52 am and got off 30 minutes later. What time was it when Robbie got off the bus?

Steps: 1. Write the start time in the first box.

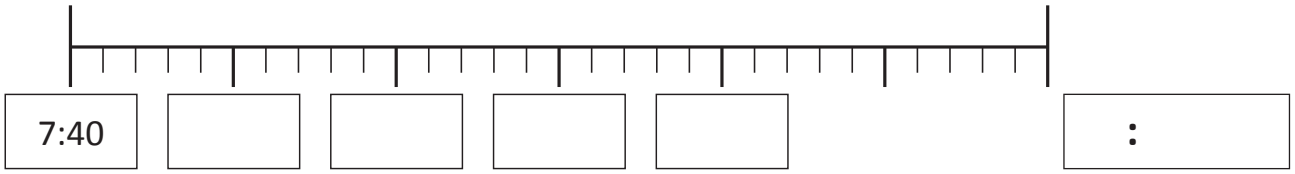
2. Use the timeline to count on in minutes.
Each large marker is 10 minutes and each small marker is 2 minutes.



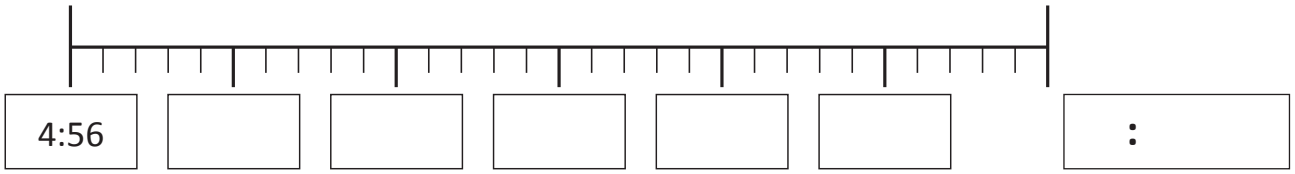
Answer: 12:22 pm

4 **Use the timeline for each elapsed time problem:**

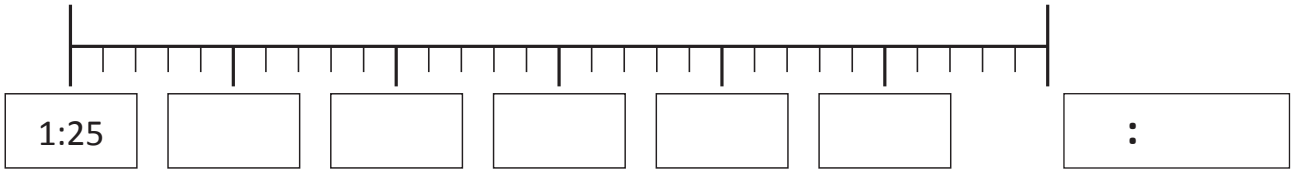
a Rex went for a jog at the park. He headed out at 7:40 am and jogged for 45 minutes. What time did he finish jogging?



b Jamie watched a TV show that started at 4:56 pm and went for 54 minutes. What time did the TV show finish?



c Naomi baked a chocolate cake. She put it in the oven at 1:25 pm and set the timer for 55 minutes. What time did the timer buzz?



Measuring time – calendars

30 days has September, April, June and November. All the rest have 31 days, except February alone which has 28 days clear and 29 days in each leap year.

1 **Fill in the missing dates on this calendar:**

January						
S	M	T	W	T	F	S
31					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

February						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

March						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21						

April						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20				

May						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20		

June						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20						

2 **What day of the week are the following dates:**

a 11th April _____

b 23rd June _____

c 2 weeks after 15th January

_____

d 3 weeks after 6th February

_____

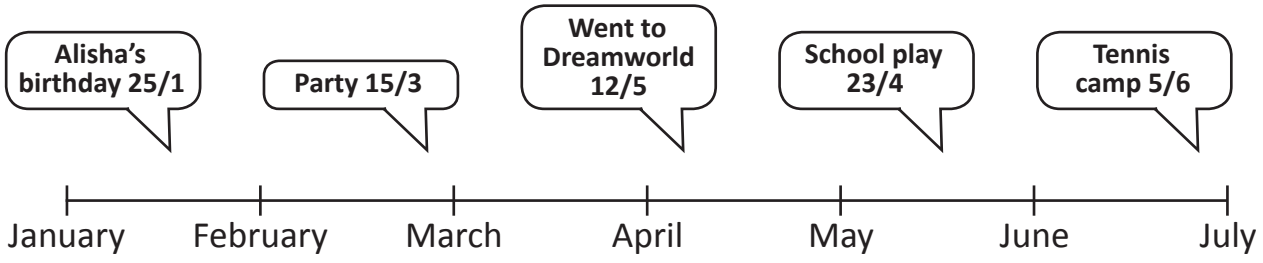
e 1 week and 4 days after 7th May

_____

f 9 days after 30th January

_____

3 **Connect each date with a line to the timeline below:**



5 birthdays

solve

Getting ready

Five friends were all born in the same year. Read the clues to work out the month and day of the week that each person was born.

Names: Max, Liam, Harriet, Stefan, Leonie

Days: Monday, Tuesday, Thursday, Saturday, Sunday

Months: March, June, July, November, December

What to do

Clues:

1 Max was born in March but not on a Tuesday.

2 His brother was born in November on a Thursday.

3 Liam was born on the weekend in the month after June.

4 One of the girls was born on Sunday in December.

5 Harriet was born one day after Max.

6 Stefan was born on the day of the week 2 days after Harriet in the month before December.

7 The child born on Monday was born in March.

Name	Day of the week	Month
Max		
Stefan		
Liam		
Harriet		
Leonie		

I have … who has …? apply

Getting ready

This is a game for 3 players. You will need only 1 copy of this page. Cut out the set of cards below.

copy

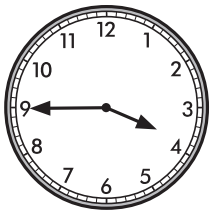
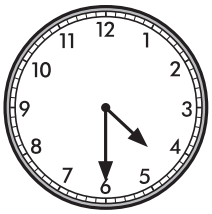
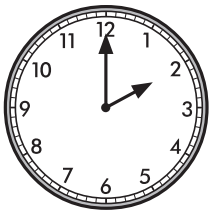
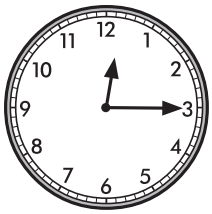
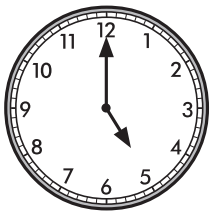
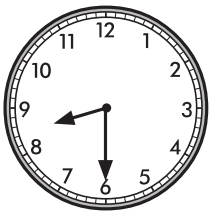
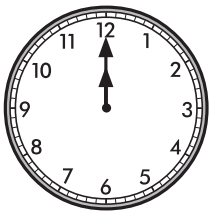
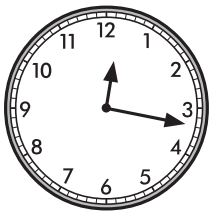
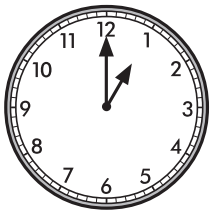
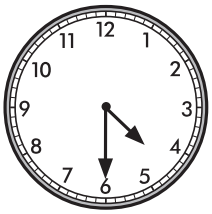
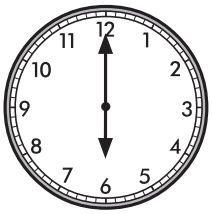
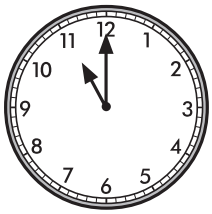
What to do

One player shuffles and deals 4 cards to each player.

Players arrange their cards face up, in order from earliest to latest.

The dealer starts by laying a card down and says, "I have … who has …?" All players try to be the first to lay the answer down. The first player to lay the matching card then reads their card and so on. *Note:* The person asking may have the matching card.

The first player to get rid of all their cards is the winner.

I have  Who has 45 minutes later?	I have  Who has $2\frac{1}{2}$ hours earlier?	I have  Who has $6\frac{1}{2}$ hours later?	I have  Who has 4 hours and 45 minutes later?
I have  Who has 1 hour and 15 minutes earlier?	I have  Who has $8\frac{1}{2}$ hours earlier?	I have  Who has 17 minutes later?	I have  Who has 43 minutes later?
I have  Who has $3\frac{1}{2}$ hours later?	I have  Who has $1\frac{1}{2}$ hours later?	I have  Who has 5 hours later?	I have  Who has $1\frac{1}{4}$ hours later?