

TOPIC: TIME (primary seven)

SUBTOPIC THE 12 HOUR CLOCK SYSTEM

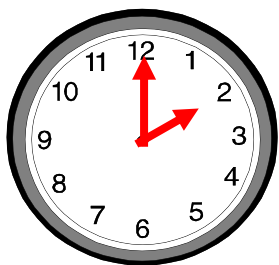
In this system, we use a.m and p.m to tell the time. We use a.m to tell the time after midnight and in the morning, then p.m. in the afternoon and evening.

Note. A new day begins at midnight

Telling time using a.m. and p.m.

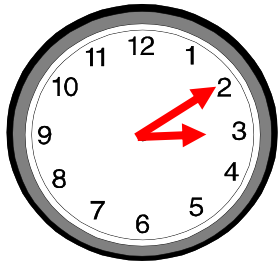
Examples.

1. What morning time is shown on the clock face below?



It is 2 o'clock in the morning or It is 2:00 a.m.

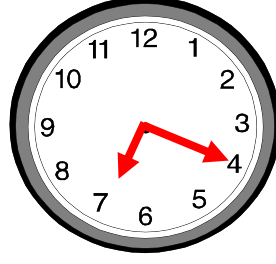
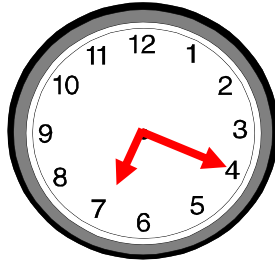
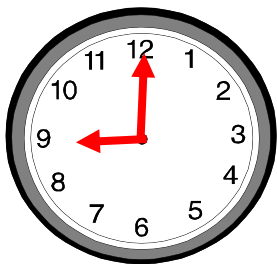
2. What afternoon time is shown on the clock face below?



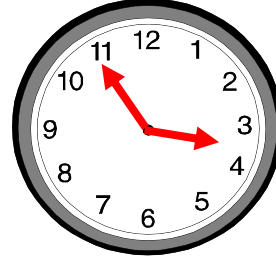
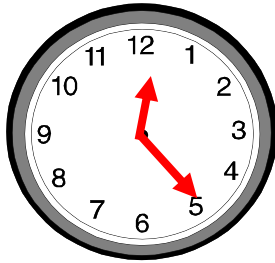
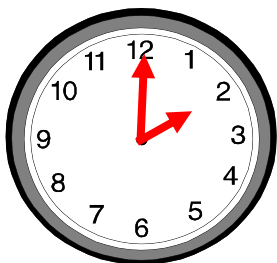
It is 3:10p.m. or it is 10minutes past 3 in the afternoon

Activity

1. Write the morning time shown on the clock faces below



2. Write the afternoon time shown on the clock faces below



3. Write the time below in words.

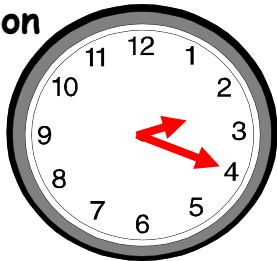
a) 8:10am – Ten minutes past eight in the morning.

b) 6:00 am

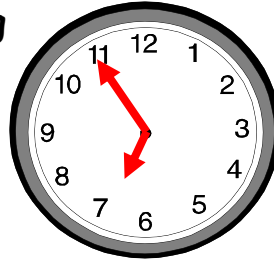
c) 3:52 pm

d) 9:35 pm

e) Afternoon



f) Morning



THE 24 HOUR CLOCK SYSTEM

In this system of telling time, we don't separate the time into am and pm. All the 24 hours of the day are written continuously using four digits ending with the word hours.

12 hour clock	24 hour clock
12:00 midnight	0000hrs
1:00 a.m	01 00 hrs
2:00 a.m	02 00 hrs
3:00 a.m	03 00 hrs
4:00 a.m	04 00 hrs
5:00 a.m	05 00 hrs
6:00 a.m	06 00 hrs
7:00 a.m	07 00 hrs

8:00 a.m	08 00hrs
9:00 a.m	09 00hrs
10:00 a.m	10 00hrs
11:00 a.m	11 00hrs
12:00 noon	12 00hrs
1:00pm	13 00hrs
2:00pm	14 00hrs
3:00pm	15 00hrs
4:00pm	16 00hrs
5:00pm	17 00hrs
6:00pm	18 00hrs
7:00pm	19 00hrs
8:00pm	20 00hrs
9:00pm	21 00hrs
10:00pm	22 00hrs
11:59pm	23 59hrs
12:00midnight	0000hrs

Changing morning time 12 hr clock to 24 hr clock

Examples

Note: When the 12 hr clock time is am the hours in the 24 clock system do not change a part from the morning of midnight Eg.

(1:00am = 0100hours) and (10:00am = 10 00 hours), implying that we just add 0000hours but (12:00am=0000hours), (12:45am=0045hours)

(a) Change 9:40am to 24 hour clock.

$$\begin{array}{r} 9:40\text{am} \\ +0000 \\ \hline 0940\text{hours} \end{array}$$

b) Change 11:35am to 24 hours clock system

$$\begin{array}{r} 11:35\text{am} \\ +0000 \\ \hline 11\ 35\text{hours} \end{array}$$

c) Change 12:35am to 24 hours clock system

$$\begin{array}{r} 12:35\text{am} \\ -12\ 00 \\ \hline 00\ 35\text{hours} \end{array}$$

Activity

1. Change the following into 24hour clock

a) 4:32am b) 6:55am c) 10:30am d) 11:48am

2. Change the following into 24hour clock

a) 12:32am b) 12:55am c) 12:30am d) 12:48am

Changing afternoon time 12 hr clock to 24 hr clock

Note: When changing afternoon time from 12hr clock to 24hr clock, we add 1200hrs apart from 12:00pm which remains as 1200hrs.

Examples

(a) Change 1:30pm to 24 hour clock .

$$\begin{array}{r} 1:30\text{pm} \\ +12\ 00 \\ \hline 13\ 30\text{hrs} \end{array}$$

c) Change 12:38pm to 24hr clock

$$\begin{array}{r} 12\ 38\text{pm} \\ +00\ 00 \\ \hline 12\ 38\text{hrs} \end{array}$$

b) Change 11:49pm to 24 hour clock .

$$\begin{array}{r} 11:49 \\ +12\ 00 \\ \hline 23\ 49\text{hrs} \end{array}$$

d) Change 12:45pm to 24hr clock

$$\begin{array}{r} 12\ 45\text{pm} \\ +00\ 00 \\ \hline 12\ 45\text{hrs} \end{array}$$

Activity

1. Express the following into 24 hours clock system

(a) 3:00pm b) 9:30pm c) 2:34pm d) 4:10pm e) 11:45pm

2. Express the following into 24 hours clock system

(a) 3:00pm b) 9:30pm c) 2:34pm d) 4:10pm e) 11:45pm

Changing morning time from 24 clock system to 12 hour clock.

Note: For any time below 12 hours (before midday), we subtract 0000hrs when changing to 12hrs clock system, this time then becomes am but for midnight, we add 1200 hours and still the result will be in am.

Examples

1. Change 0243hrs to 12hr clock system.

$$\begin{array}{r} 02\ 43\text{hrs} \\ -00\ 00 \\ \hline 02\ 43\text{am} \end{array}$$

2. Change 1145hrs to 12hr clock

$$\begin{array}{r} 11\ 45\text{hrs} \\ -00\ 00 \\ \hline 11\ 45\text{am} \end{array}$$

3. Change 0043hrs to 12hr clock system.

$$\begin{array}{r} 00\ 43\text{hrs} \\ +12\ 00 \\ \hline 12\ 43\text{am} \end{array}$$

2. Change 0030hrs to 12hr clock

$$\begin{array}{r} 00\ 30\text{hrs} \\ +12\ 00 \\ \hline 12\ 30\text{am} \end{array}$$

Activity

1. Express the following into 12 hours clock system

(a) 0300hrs b) 0930hrs c) 0234hrs d) 1010hrs e) 1145hrs

2. Express the following into 24 hours clock system

a) 0050hrs b) 0035hrs c) 0010hrs d) 0008hrs e) 0045hrs

Changing afternoon time from 24 clock system to 12 hour clock.

We subtract 12hours from any time above 1200hrs to change to 12 hour clock and the result will be in pm but the pm of midday does not change(subtract 0000hrs)

Examples

a)Change 1500hrs to 12 clock time.

$$\begin{array}{r} 1500\text{hrs} \\ -1200\text{hrs} \\ \hline 3:00\text{pm} \end{array}$$

C) Change 1245hrs to 12hr clock system

$$\begin{array}{r} 1245\text{hrs} \\ -0000\text{hrs} \\ \hline 12:45\text{pm} \end{array}$$

b)Write 2310 hours to a 12hrs clock.

$$\begin{array}{r} 2310\text{hrs} \\ -1200\text{hrs} \\ \hline 11:10\text{pm} \end{array}$$

d) Change 1205hrs to 12hr clock

$$\begin{array}{r} 1205\text{hrs} \\ -0000\text{hrs} \\ \hline 12:05\text{pm} \end{array}$$

Activity

1.Express the following into 12 hours clock system

1330hrs b) 1933hrs c) 2234hrs d) 1810hrs e) 2145hrs

2.Express the following into 24 hours clock system

b) 1250hrs b) 1235hrs c) 1210hrs d) 1208hrs e) 1245hrs

DURATION OF TIME

Duration means amount of time taken between different intervals.

Finding duration, starting time and ending time

Points to note:

- ›Duration= Ending time -Starting time
- ›Ending time= Starting time + Duration
- ›Starting time= Ending time - Duration

Examples

1. Luyiga started walking from her house at 7:15am and reached the town at 9:15am. How long did it take walking?

Duration= Ending time -Starting time

$$\begin{array}{r} 9:15\text{am} \\ -7:15\text{am} \\ \hline 2:00\text{hrs} \end{array}$$

She walked for 2hours

2. A fifty-minute lesson started at 9:40am. At what time did it end?

ET=ST + D

$$\begin{array}{r} 9:40\text{am} \\ +0:50 \\ \hline 10:30\text{am} \end{array}$$

$$40\text{min} + 50\text{min} = 90\text{min}$$

$$90\text{min} = 1\text{hr}30\text{min}$$

2. A forty five minutes lesson ended at 9:20am. At what time did it start

$$(60+20)-45\text{min}$$

$$\begin{array}{r} 9:20\text{am} \\ -0:45 \\ \hline 8:35\text{am} \end{array}$$

$$80-45=35\text{min}$$

3. A meeting started at 10:40am and ended at 12noon. How long did it take?

$$(60-40) = 20\text{min}$$

$$\begin{array}{r} 12:00 \\ -10:40 \\ \hline 1:20 \end{array}$$

$$1\text{hour}20\text{min}$$

Activity

1. A forty-minute lesson started at 11:15am. At what time did it end?
2. A mathematics lesson started at 9:10am and ended at 9:50am. How long did it take?
3. A football which took 1hr and 30 min, started at 4:20pm. When did it end?

4. A birth day party started at 4:30pm and lasted $2\frac{1}{4}$ hours. At what time did end?
5. The first half of a football match ended at 5:25pm after being played for 45minutes. At what time did the match start?
6. A meeting started at 9:30am and lasted 50minutes. At what time did it end?
7. A party started at 5:15pm and lasted 100 minutes. At what time did it end?
8. A mathematics examination which took 2hours and 30 minutes, ended at 11: 00am. At what time did it start?
9. It started raining at 9:25am and it stopped at 2:00pm. For how long did it rain?
10. Musa went to sleep at 1930hours and did not wake up until 0830hours the following day. For how long did he sleep?
11. Alorry left Kampala at 11:15pm and reached Kasese at 5: 45am. How long did the journey take?
12. It started raining at 12:45pm and it stopped at 3:05pm. For how long did it rain?

Reference: MK Book 5 pg 252, Macmillan PR MATHS BK 5 pg. 166, MK pupils BK7

FINDING DISTANCE, SPEED AND TIME

Points to note

1. Distance = Speed x Time
2. Speed = $\frac{\text{Distance}}{\text{Time}}$
3. Time = $\frac{\text{Distance}}{\text{Speed}}$

Finding distance when given speed and time

Examples

1. John took 4hours to cover a certain distance at a speed of 30km/hr. What distance did he cover?

Distance = Speed x Time

$$\frac{30\text{km}}{\text{hr}} \times 4\text{hr}$$

$$= (30 \times 4)\text{km}$$

$$= 120\text{km}$$

2. A bus travelling at a speed of 60km per hour, covered a distance from town X to town Y in $1\frac{1}{2}$ hours. Calculate the distance between two towns.

$$\begin{aligned} \text{Distance} &= \text{Speed} \times \text{Time} &= (30 \times 3)\text{km} \\ &= \frac{60\text{km}}{\text{hr}} \times 1\frac{1}{2}\text{hr} &= 90\text{km} \\ &= (\cancel{60}^{\cancel{30}} \times \frac{3}{\cancel{2}^1})\text{km} \end{aligned}$$

3. A cyclist travelled for 45 minutes at a speed of 60km/hr. What distance did he cover?

$$\begin{aligned} \text{Distance} &= \text{Speed} \times \text{Time} \\ \text{Distance} &= \frac{60\text{km}}{\text{hr}} \times \frac{45}{60}\text{hr} \\ \text{Distance} &= (1 \times 45)\text{km} \\ \text{Distance} &= 45\text{km} \end{aligned}$$

Activity

1. A cyclist took 2 hours to cover a certain distance at a speed of 50km/hr. What distance did he cover?

2. A bus travelling at a speed of 80km per hour, covered a distance from town A to town B in $2\frac{1}{2}$ hours. Calculate the distance between two towns

3. A cyclist travelled for 45 minutes at a speed of 120km/hr. What distance did he cover?

4. A motorist travelled for 40 minutes at a speed of 90km per hour. What distance did he cover?

5. A taxi left town A for B at 10:30am driving at a speed of 80km per hour. The driver reached town B at 2:00pm.

a) Calculate the time taken by the driver to reach town B.

b) Find the distance between town A and town B.

Finding time when given distance and speed

Examples

1. Calculate the time taken by a lorry to travel a distance of 120km at a speed of 60km/hr.

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\text{Time} = \left(\frac{120^2}{60^1}\right) \text{hrs}$$

$$\text{Time} = 2 \text{ hours}$$

2. How long can a bus travelling at a speed of 80km per hour take to cover a distance of 240km?

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\text{Time} = \left(\frac{240^3}{80^1}\right) \text{hrs}$$

$$\text{Time} = 3 \text{ hours}$$

3. A lorry covered a distance of 90km at a speed of 60km/hr. Calculate the time the lorry took to cover that journey.

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\text{Time} = \left(\frac{90^3}{60^2}\right) \text{hrs}$$

$$\text{Time} = \frac{3}{2} \text{ hrs}$$

$$\text{Time} = 1\frac{1}{2} \text{ hrs}$$

Activity

1. Calculate the time taken by a lorry to travel a distance of 240km at a speed of 60km/hr.

2. How long can a bus travelling at a speed of 60km per hour take to cover a distance of 300km?

3. A lorry covered a distance of 150km at a speed of 60km/hr. Calculate the time the lorry took to cover that journey.

4. How long will a car take to cover a distance of 120km at a speed of 40km/hr

5. A motorist covered a distance of 90km at a speed of 120km/hr. How long did he take to cover that journey?

Finding speed when given time and speed

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Examples

1. Godon took 2 hours to cover a distance of 36km on his bicycle. At what speed was he riding?

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Speed} = \left(\frac{36}{2}\right) \text{km/hr}$$

$$\text{Speed} = 18 \text{km/hr}$$

2. A bus covered a distance of 80km in 40 minutes. Calculate its speed in km/hr.

$$\text{Speed} = D \div T$$

$$\text{Speed} = 80 \text{km} \div \frac{40}{60} \text{hr}$$

$$\text{Speed} = \left(80 \times \frac{60}{40}\right) \text{km/hr}$$

$$\text{Speed} = (2 \times 60) \text{km/hr.}$$

$$\text{Speed} = 120 \text{km/hr.}$$

3. A motorist covered a distance of 150km in $2\frac{1}{2}$ hours. Calculate his speed.

$$\text{Speed} = D \div T$$

$$\text{Speed} = 150 \text{km} \div \frac{5}{2} \text{hr}$$

$$\text{Speed} = \left(150 \times \frac{2}{5}\right) \text{km/hr}$$

$$\text{Speed} = (30 \times 2) \text{km/hr}$$

$$\text{Speed} = 60 \text{km/hr}$$

Activity

1. A cyclist took 3 hours to cover a distance of 150 km. At what speed was he travelling?

2. Anita took 6 hours on a journey of 180 km. Calculate her speed.

3. A car covered a distance of 210 km in $1\frac{1}{2}$ hours. Calculate its speed in km/hr

4. Peter started a journey of 120 km at 8:30 am and ended at 10:00 am. Find his speed in km/hr.

5. A taxi left town A at 9:30 am and reached town B at 12:30 pm. The distance between A and B is 150 km

a) Calculate the time taken by the driver to reach town B.

b) Work out the speed used by the taxi.

Converting speed from km per hour to metres per second

Points to note

- 1 km = 1000 m
- 1 hr = 60 minutes
- 1 hr = 3600 seconds

Examples

1. Change 180 km/hr to m/s

Distance in metres

$$1 \text{ km} = 1000 \text{ m}$$

$$180 \text{ km} = (180 \times 1000) \text{ m}$$

$$180 \text{ km} = 180000 \text{ m}$$

Time in seconds

$$1 \text{ hr} = 3600 \text{ sec}$$

$$1 \text{ hr} = (1 \times 3600) \text{ sec}$$

$$1 \text{ hr} = 3600 \text{ sec}$$

$$\text{Speed} = \left(\frac{180000}{3600} \right) \text{ m/s}$$

$$\text{Speed} = \left(\frac{1800}{36} \right) \text{ m/s}$$

$$\text{Speed} = 50 \text{ m/s}$$

2. Change 144km/hr to m/s

Distance in metres

$$1\text{km}=1000\text{m}$$

$$144\text{km}=(144\times 1000)\text{m}$$

$$144\text{km}=144000\text{m}$$

Time in seconds

$$1\text{hr}=3600\text{sec}$$

$$1\text{hr}=(1\times 3600)\text{sec}$$

$$1\text{hr}=3600\text{sec}$$

$$\text{Speed} = \left(\frac{144000}{3600} \right) \text{m/s}$$

$$\text{Speed} = \left(\frac{1440}{36} \right) \text{m/s}$$

$$\text{Speed} = 40\text{m/s}$$

3. A lorry covers a distance of 144km in 2 hours. Calculate its speed in meters per second

Distance in metres

$$1\text{km}=1000\text{m}$$

$$144\text{km}=(144\times 1000)\text{m}$$

$$144\text{km}=144000\text{m}$$

Time in seconds

$$2\text{hr}=3600\text{sec}$$

$$2\text{hr}=(2\times 3600)\text{sec}$$

$$2\text{hr}=7200\text{sec}$$

$$\text{Speed} = \left(\frac{144000}{7200} \right) \text{m/s}$$

$$\text{Speed} = \left(\frac{1440}{72} \right) \text{m/s}$$

$$\text{Speed} = 20\text{m/s}$$

Activity

1. Convert the following into metres per second.

a) 36km/hr

b) 72km/hr

c) 72km/hr

d) 18km/hr

2. A cyclist covers a distance of 72km in 2 hours. Calculate his speed in m/s

3. An aeroplane covered a distance of 1800km in one hour. Find its speed in meters per second.

4. A motorist travelled a distance of 288km in 4 hours. Calculate his speed in meters per second.

Converting speed from meters per second to km per hour

Points to note

➤ 1KM=1000m

➤ 1hr=60minutes

➤ 1hr=3600seconds

Examples

1. Change 5m/s into km/hr

Distance in km

$$1000\text{m}=1\text{km}$$

$$5\text{m}=\frac{5}{1000}\text{ km}$$

Time in hrs

$$3600\text{sec}=1\text{hr}$$

$$1\text{sec}=\frac{1}{3600}\text{hr}$$

$$\text{Speed}=\text{D} \div \text{T}$$

$$\text{Speed}=\left(\frac{5}{1000} \div \frac{1}{3600}\right)\text{km/hr}$$

$$\text{Speed}=\left(\frac{5}{1000} \times \frac{3600}{1}\right)\text{km/hr}$$

$$\text{Speed}=\left(\frac{18000}{1000}\right)\text{km/hr}$$

$$\text{Speed}=18\text{km/hr}$$

2. Change 30m/s into km/hr

Distance in km

$$1000\text{m}=1\text{km}$$

$$30\text{m}=\frac{30}{1000}\text{ km}$$

Time in hrs

$$3600\text{sec}=1\text{hr}$$

$$1\text{sec}=\frac{1}{3600}\text{hr}$$

$$\text{Speed}=\text{D} \div \text{T}$$

$$\text{Speed}=\left(\frac{30}{1000} \div \frac{1}{3600}\right)\text{km/hr}$$

$$\text{Speed}=\left(\frac{30}{1000} \times \frac{3600}{1}\right)\text{km/hr}$$

$$\text{Speed}=\left(\frac{108000}{1000}\right)\text{km/hr}$$

$$\text{Speed}=108\text{km/h}$$

3. A cyclist covers a distance of 30m in 2sec. Find his speed in km/hr

Distance in km

$$1000\text{m}=1\text{km}$$

$$30\text{m}=\frac{30}{1000}\text{ km}$$

Time in hrs.

$$3600\text{sec}=1\text{hr}$$

$$1\text{sec}=\frac{1}{3600}\text{hr}$$

$$2\text{sec}=\frac{2}{3600}\text{hr}$$

$$\text{Speed}=\left(\frac{30}{1000} \div \frac{2}{3600}\right)\text{km/hr}$$

$$\text{Speed}=\left(\frac{30}{1000} \times \frac{3600}{2}\right)\text{km/hr}$$

$$\text{Speed}=\left(\frac{54000}{1000}\right)\text{km/hr}$$

$$\text{Speed}=54\text{km/hr}$$

Activity

1. Express the speed below in km/hr

- a) 10m/s b) 50m/s c) 60m/s d) 30m/s

2. In a rally, a car covered 200m in 4 seconds. Calculate its speed in km/hr

3. A bus covered a distance at 15m/s. Calculate its speed in km/hr

4. An air craft covers a distance of 400m in 10sec. Find its speed in km/hr

Calculating average speed

$$\text{Average speed} = \frac{\text{Total distance covered}}{\text{Total time taken}}$$

Examples

1. A car takes 3hrs to cover a certain journey at 60km/hr but it takes only 2 hours to return through the same route. Calculate its average speed for the whole journey.

First journey

$$D = S \times T$$

$$D = \frac{60\text{km}}{\text{hr}} \times 3\text{hr}$$

$$D = (60 \times 3)\text{km}$$

$$D = 180\text{km}$$

Distance for the
return journey

$$= 180\text{km}$$

Average speed

$$\text{A. speed} = \frac{\text{Total distance covered}}{\text{Total time taken}}$$

$$\text{A. speed} = \frac{180\text{km} + 180\text{km}}{3\text{hrs} + 2\text{hrs}}$$

$$\text{A. speed} = \frac{360\text{km}}{5\text{hr}}$$

$$\text{A. speed} = 72\text{km/hr}$$

2. A motorist takes 2hrs to cover a journey from at 90km/hr. He returns through the same route at a speed of 60km/hr. Calculate his average speed for the whole journey

First journey

$$D = S \times T$$

$$D = \frac{90\text{km}}{\text{hr}} \times 2\text{hr}$$

$$D = (90 \times 2)\text{km}$$

$$D = 180\text{km}$$

Distance for the
return journey

$$= 180\text{km}$$

Time for the return
journey

$$T = \frac{D}{S}$$

$$T = \frac{180}{60}\text{hrs}$$

$$T = 3\text{hrs}$$

$$\text{A. speed} = \frac{\text{Total distance covered}}{\text{Total time taken}}$$

$$\text{A. speed} = \frac{180\text{km} + 180\text{km}}{2\text{hrs} + 3\text{hrs}}$$

$$\text{A. speed} = \frac{360\text{km}}{5\text{hr}}$$

$$\text{A. speed} = 72\text{km/hr}$$

Activity

1. A motorist travelled at speed of 60km per hour for 2hours from town A to B. He returned to town A using the same route in 3hour.

Calculate the motorist's average speed for the whole journey.

2. A motorist takes 4hrs to cover a journey from at 90km/hr. He returns through the same route at a speed of 60km/hr. Calculate his average speed for the whole journey

3) A car takes 4 hours to cover a journey at a speed of 60km/hr but it returns in only 2 hours using the same route. Find its average speed for the whole journey.

4. A cyclist travelled at a speed of 80kph for 3 hours from town X to town Y. He continued to town Z at speed of 40kph for 2 hours.

a) What distance did he cover for the whole journey?

b) Work out his average speed for the whole journey.

5. A motorist travelled at speed of 40km per hour for $1\frac{1}{2}$ hours. He rested for 30 minutes and later continued with the journey at a speed of 80km per hour.

a) What distance did the motorist cover for the whole journey?

b) Calculate his average speed for whole journey?

INTERPRETING TIME TABLES

When interpreting time tables, it is important to identify the arrival time and departure time at a given place.

The table below shows a distance - time table for a bus travelling from Masindi to Kitgum.

TOWN	DISTANCE	ARRIVAL	DEPARTURE
MASINDI	0km		9:00am
KIGUMBA	39KM	9:40am	10:00am
KAMUDINI	115KM	11:10am	11:25am
LIRA	191KM	12:30pm	1:00pm
KITGUM	125KM	3:15pm	4:55pm

(a) At what time did the bus arrive at Kamudini

b) What was the departure time of the bus from Lira?

c) What is the distance between Kigumba and Lira?

d) How long does the bus take to travel from Masindi to Kitgum?

2. The timetable below shows the arrival and departure time for a taxi travelling from town A to town F

TOWN	ARRIVAL TIME	DEPARTURE TIME
A		0845hours
B	0930hours	0935hours
C	1000hours	1010hours
D	1045hours	1055hours
E	1140hours	1150hours
F	1215hours	

a) At what time does the taxi take to travel from town B to E?

b) For how long does the taxi stay at town D?

c) Express the taxi's arrival time to town F in 24hour clock.

d) Find the total time taken by the taxi for the whole journey.

e) If the distance from A to F is 210km, Find the average speed of the taxi for the whole journey.

2. The timetable below shows how a bus travelled from Iganga to Kampala

TOWN	ARRIVAL	DEPARTURE
Iganga		6:00am
Kakira	6:30am	6:45am
Jinja	7:20am	7:50am
Mbiiko	8:25am	8:30am
Lugazi	11:40am	12:00noon
Mukono	1.26pm	2:09pm
Kampala	4:10pm	

- At what time did the bus leave Iganga?
 - Express the bus' arrival time to Mukono in 24hour clock.
 - For how long did the bus stay at Lugazi?
 - Find the time taken by the bus to travel from Iganga to Kampala.
4. The timetable below shows how a bus travels from Mbale to Kampala.

Mbale	Departure	9:00am
Tororo	Arrival	9:45am
	Departure	10:00am
Iganga	Arrival	11:15am
	Departure	11:30am
Jinja	Arrival	12:00noon
	Departure	12:20pm
Kampala	Arrival	1:30pm

- How long does the bus take to travel from Mbale to Kampala?
- Find the total time taken by the bus for all the stop overs.
- Express the bus' arrival time to Tororo in 24hour clock.
- How long does the bus take to travel from Tororo to Jinja.
- If Kampala is 252km from Mbale, find the average speed of the bus for the whole journey?

4. The time table below shows a journey made by a bus a bus from Kampala to Kabulasoke.

Distance in km	Station	Departure	Arrival
0	Kampala	8:00am	
20	Mpigi	9:45am	9:00am
30	Gomba	11:20am	11:00am
50	Kinoni	12:10pm	1:00pm
75	Kabulasoke		3:30pm

- What is the distance from Mpigi to Kinoni?

- b) Express the arrival time of the bus to Kabulasoke in 24hour clock.
- c)How far is Kabulasoke from Gomba?
- d)At what speed did the bus travel between Mpigi and Gomba?
- e) Calculate the bus' average speed for the whole journey.

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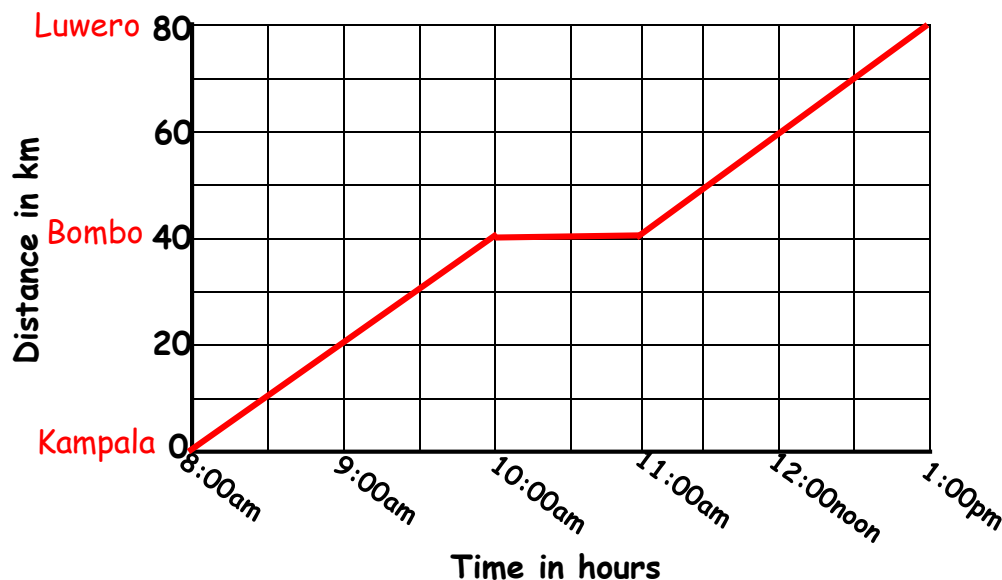
TRAVEL GRAPH (DISTANCE -TIME GRAPH)

Points to note

- A travel graph is also called a distance – time graph because it is plotted with distance (on the vertical axis) against time (on the horizontal axis).
- When interpreting a travel graph, the scale on both vertical and horizontal axis must be identified.
- The scale is determined by identifying the representation of a single square since a travel graph is drawn on a squared paper.

Examples

- 1.The graph below shows a cyclist's journey from Kampala to Luwero via Bombo



- 1.State the scale on the vertical axis.

One small square represents 10km.

2. State the scale the scale on the horizontal scale.

One small square represents 30minutes.

3. At what time did the cyclist start his journey?

At 8:00am

4. For how long did the cyclist rest at Bombo?

For one hour

5. How far is Luwero from Bombo?

$(80-40)=40\text{km}$

6. How long did the cyclist take to travel from Kampala to Luwero?

He took 5hours

7. Express his arrival time to Luwero in 24hour clock system.

$1:00\text{pm} + 12:00\text{hrs}=1300\text{hrs}$

8. Calculate the cyclist's average speed for the whole journey

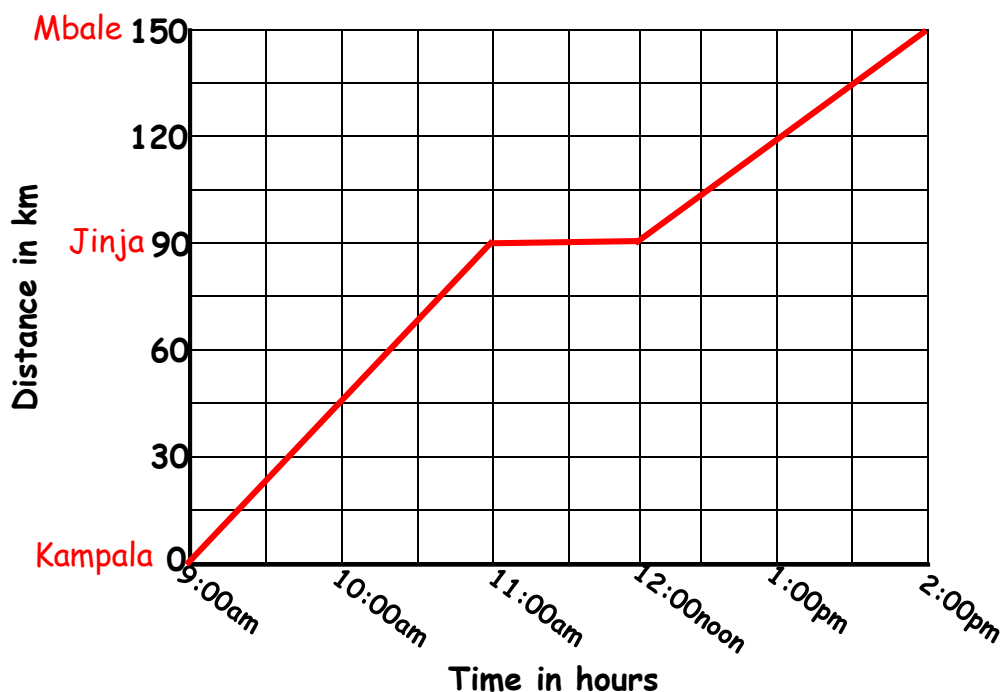
$$\text{A. speed} = \frac{\text{Total distance covered}}{\text{Total time taken}}$$

$$\text{A. speed} = \frac{80\text{km}}{5\text{hr}}$$

$\text{A. speed}=16\text{km/hr}$

Activity

1. The graph below shows Kato's Journey from Kampala to Mbale via Jinja. Study it carefully and use it to answer the questions that follow



- State the scale on the vertical axis
- State the scale on the horizontal axis.
- Express Kato's departure time from Kampala in 24hour clock system
- For how long did Kato rest at Jinja?
- For how long did Kato to travel from Jinja to Mbale?
- How far is Mbale from Jinja?
- Calculate Kato's speed between Kampala and Jinja.
- Workout Kato's average speed for the whole journey.

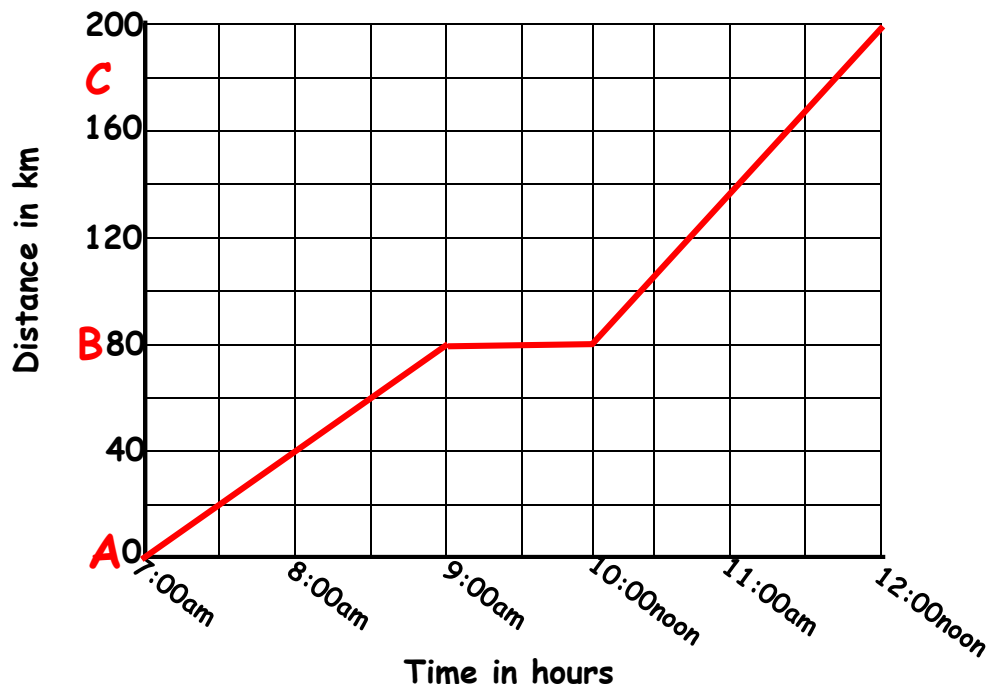
Plotting distance covered and time taken on a graph

Examples

1. A bus left Town A at 7:00am and travelled for 2 hours at a speed of 40km per hour to town B. He rested for one hour at town B and later continued to town C for another 2 hours at a speed of 50km per hour.

a) Show the above journey on a graph.

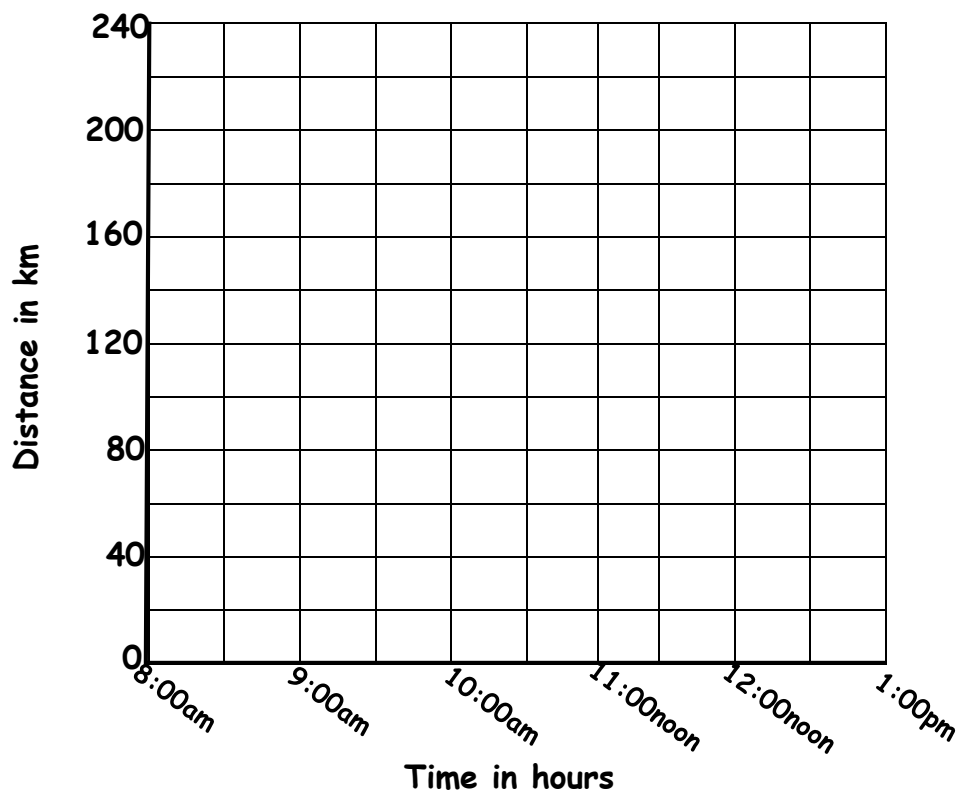
<u>Distance from A to</u>	<u>Resting at B</u>	<u>Distance from B to C</u>
Distance=Speed x Time $= \frac{40\text{km}}{\text{hr}} \times 2\text{hr}$ $= (40 \times 2)\text{km}$ $= 80\text{km}$	=1hour	Distance=Speed x Time $= \frac{50\text{km}}{\text{hr}} \times 2\text{hr}$ $= (50 \times 2)\text{km}$ $= 100\text{km}$



Activity

1. Kato left Town X at 8:00am and travelled for $2\frac{1}{2}$ hours at a speed of 40km per hour to town Y. He rested for 30 minutes at town Y and later continued to town Z for another 2 hours at a speed of 50km per hour.

a) Show the above journey on a graph.



b) At what time did he reach town Z?

c) Calculate Kato's average speed for the whole journey

Other timetables(class timetables and work timetables)

1.The timetable below shows how a pupil spent her time last Saturday.
Study it carefully and use it to answer the questions that follow.

TIME	ACTIVITY
7:00am-10:30am	Digging
10:45am-12:45pm	Washing
1:00pm-2:45pm	Playing
5:00pm-7:30pm	Reading

- a) How long did he take playing?
- b) How long did he take reading?
- c) Which activity took more time than others?

2.Below is a class time for a primary six class.

From	8:30am	9:10am	9:50am	10:30am	11:00am	11:40am	12:20pm	1:00pm	2:00pm	2:40pm	3:20pm
To	9:10am	9:50am	10:30am	11:00am	11:40am	12:20pm	1:00pm	2:00pm	2:40pm	3:20pm	4:30pm
MON	ENG	MTC	P.E	BREAK	ENG	ENG	Library	LUNCH	RE	SST	GAMES
TUE	MTC	SST	RE		ENG	MUSIC	Computer		SST	SCI	
WED	SCI	SCI	MUSIC		SST	MTC	SST		MUSIC	MTC	
THUR	MTC	SST	MTC		RE	SCI	SCI		SCI	ENG	
FRI	SCI	SCI	SCI		MTC	MTC	ENG		ENG	MTC	

- a)At what time do the lessons begin in the morning?
- b)How many mathematics lesson are taught the whole week?
- c)How long does break time take?
- e)How many computer lessons are shown on the timetable?
- f) How long does games activity take?