Anil and Alex are car drivers. Anil drove 180 kilometers in 4 hours and Alex drove 230 kilometers in 5 hours. Whose average speed is greater?

ANSWER:

Distance travelled by Anil in 4 hours = 180 km

We know that $\text{average speed} = \frac{\text{Distance travelled}}{\text{Time taken}}$

So, speed of Anil's car = $\frac{180}{4}$ km/h

= 45 km/h

Distance travelled by Alex in 5 hours = 230 km

So, speed of Alex's car = $\frac{230}{5}$ km/h

= 46 km/h

The average speed of Alex's car is greater than the average speed of Anil's car.

Now can't you complete this table

km/hour	72	48	1	.....	.....
metre/second	.....	.....	.....	1	20

ANSWER:

We know that 1 km = 1000 m

1 hour = (60 × 60) seconds = 3600 seconds

km/hour	72	48	1	$1 \times \frac{3600}{1000} = \underline{3.6}$	$20 \times \frac{3600}{1000} = \underline{72}$
metre/ second	$72 \times \frac{1000}{3600} = \underline{20}$	$48 \times \frac{1000}{3600} = \underline{13.33}$	$1 \times \frac{1000}{3600} = \underline{0.28}$	1	20

On Saturday night, Prachi spent 18 minutes on her social science homework, 35 minutes on her mathematics homework and 22 minutes on her English homework. How much time did she spend on her homework in total?

(a) 1 h 75 min
(b) 2 h 15 min
(c) 2h 75 min
(d) 1 h 15 min

ANSWER:

(d) 1 h 15 min

Time spent by Prachi on social science homework = 18 min
Time spent by Prachi on mathematics homework = 35 min
Time spent by Prachi on English homework = 22 min
Total time spent by Prachi on her homework = 18 + 35 + 22

=75

min or (60 + 15) min (∵ 1 h = 60 min)

= 1 h

15 min

Express these times according to the 24-hour clock.
(a) 2.25 am
(b) 3.05 am
(c) 10.50 pm
(d) 8.05 pm
(e) 7.05 pm

ANSWER:

(a) 2:25 a.m.
This is 2 hours after the beginning of a day, so the 24-hour clock will show the time as 0225.

(b) 3:05 a.m.
This is 3 hours after the beginning of a day, so the 24-hour clock will show the time as 0305.

(c) 10:50 p.m.
This is 22 hours (12 + 10) after the beginning of a day, so the 24-hour clock will show the time as 2250.

(d) 8:05 p.m.
This is 20 hours (12 + 8) after the beginning of a day, so the 24-hour clock will show the time as 2005.

(e) 7:05 p.m.
This is 19 hours (12 + 7) after the beginning of a day, so the 24-hour clock will show the time as 1905.

Express the following speeds in m/s.

(a) 45km/h

(b) 135 km/h

(c) 90 km/h

(d) 75km/h

ANSWER:

We know:

1 km = 1000 m

1 h = (60 × 60) s = 3600 s

Now,

(a) 45 km/h = (45 × 1000)/(1 × 3600)

= 12.5 m/s

(b) 135 km/h = (135 × 1000)/(1 × 3600)

= 37.5 m/s

(c) 90 km/h = (90 × 1000)/(1 × 3600)

= 25 m/s

(d) 75 km/h = (75 × 1000)/(1 × 3600)

= 20.83 m/s

Express the following speeds in km/h.
(a) 65km/h
(b) 40km/h
(c) 100m/s
(d) 10 m/s

ANSWER:

We know:

1000 m = 1 km
1 m = (1/1000) km

Also,

(60 × 60) s or 3600 s = 1 h
1 s = (1/3600) h

(a) 65 m/s $= \frac{(65/1000)}{(1/3600)}$
$= 234 \text{ km/h}$

(b) 40 m/s $= \frac{(40/1000)}{(1/3600)}$
$= 144 \text{ km/h}$

(c) 100 m/s $= \frac{(100/1000)}{(1/3600)}$
$= 360 \text{ km/h}$

(d) 10 m/s $= \frac{(10/1000)}{(1/3600)}$
$= 36 \text{ km/h}$

An athlete covers 1500 m in 4 minutes. Calculate his speed in m/s and km/h.

ANSWER:

We know:
1 km = 1000 m
And,
1 h = 60 min
= (60 × 60) s
= 3600 s

Now,

Distance travelled by the athlete = 1500 m
= (1500/1000) km
= 1.5 km

Time taken = 4 min
= 4/60 h
= 1/15 h or (4 × 60) s
= 240 s

Speed in m/s:
Speed = Distance/Time
= 1500/240
= 6.25 m/s

Speed in km/h:
Speed = Distance/Time
= 1.5/(1/15)
= 22.5 km/h

What is the speed of a swimmer if she covers 100 m in 60 seconds?

ANSWER:

Distance covered by the swimmer = 100 m
Time taken by the swimmer = 60 s

∴ Speed = Distance/Time
= 100/60
= 1.67 m/s