

GATE

ALL BRANCHES

General Aptitude



Clocks - 2



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TOPICS TO BE COVERED

- 1.
- 2.
- 3.

To find Time when Angle is given

Understanding Gain or Loose

Brainstorming on Clocks

Previous Session (Revision)



1. Relative Speed Concept in Clocks



2. To find Angle when Time is given



Angle Given: Time?





Properties

0° or coinciding each

~~12 hrs = 11 times~~

$12 \text{ hrs} = \cancel{12} \text{ times}$

$24 \text{ hrs} = \cancel{22} \text{ times}$



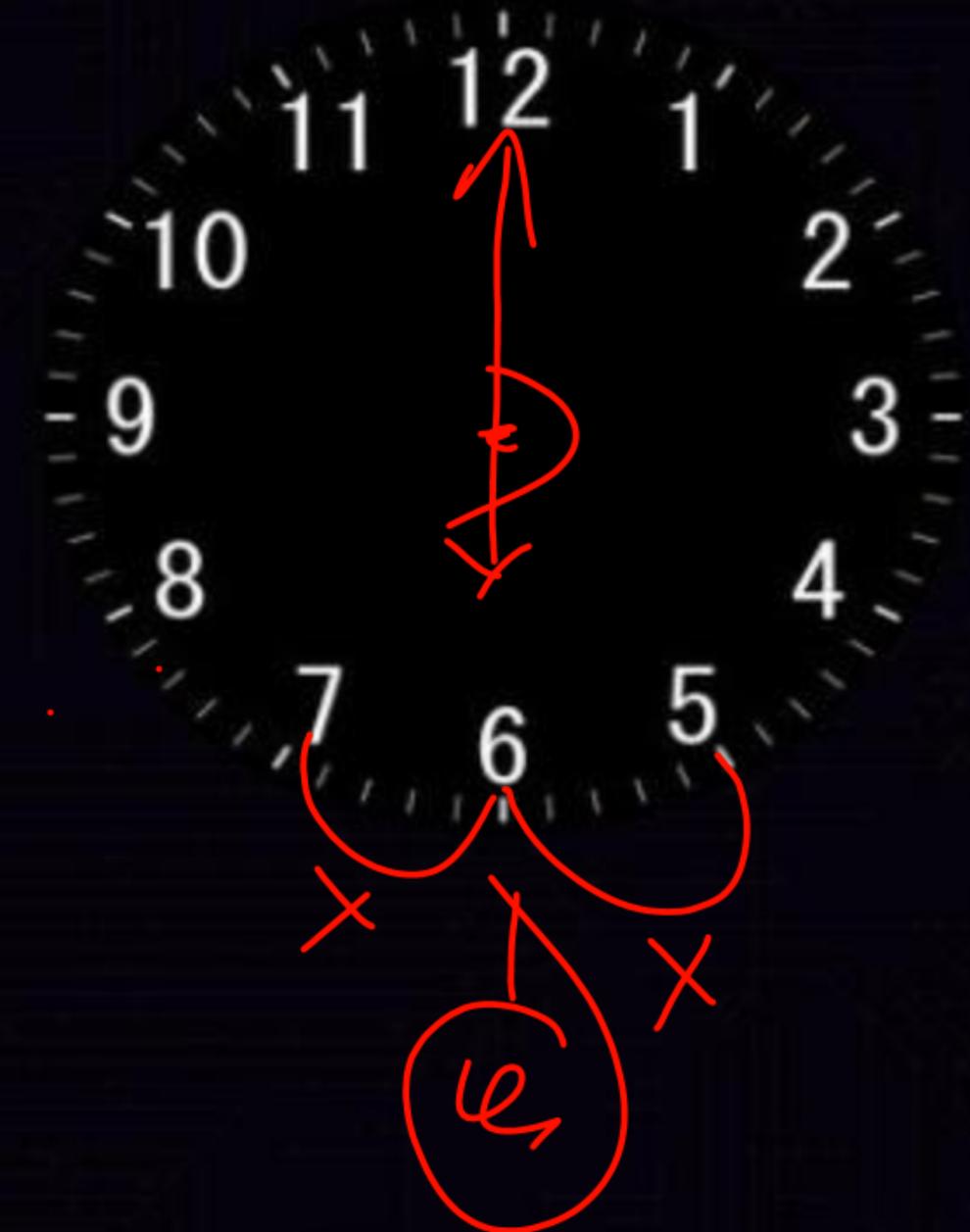


Properties

180° OR opp each other

12 hrs = 11 times

24 hrs = 22 times





Properties

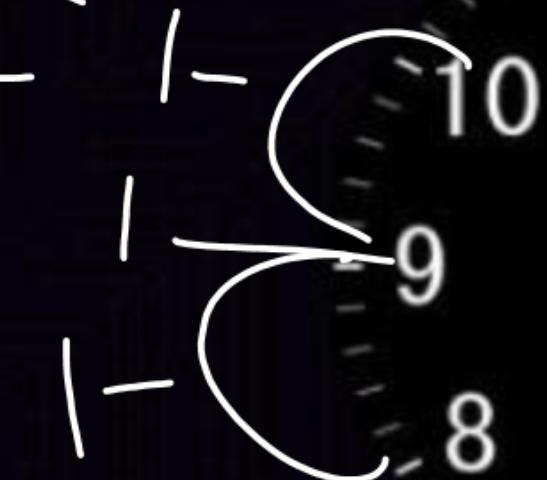
$\equiv \equiv$ 90°

Any angle except 0° & 180°

OR Right Angle



12 hrs = 22 times



24 hrs = 44 times





Angle Given: Time?

PW

2-3 @ 90°

In between 2 o' clock and 3 o' clock at what time the hands of the clock make 90°?

$$\frac{150^\circ \times 2}{5.5^\circ \times 2} = \frac{300}{11}$$
$$= 27 \frac{3}{11} \text{ min}$$

2: 27 $\frac{3}{11}$





Angle Given: Time?

PW

4:03 $\frac{7}{11}$

4:40

In between 4 o' clock and 5 o' clock at what time the hands of the clock make 100° ?

$$\frac{20}{5.5} = \frac{40}{11} = 3\frac{7}{11} \text{ min}$$

$$\frac{220}{5.5} = \frac{440}{11} = 40 \text{ min}$$





Angle Given: Time?

PW

6:21 $\frac{9}{11}$ min 6:43 $\frac{7}{11}$ min

In between 6 o' clock and 7 o' clock at what time the hands of the clock make 60°?

$$\frac{120^\circ}{5.5} = \frac{240}{11} = 21\frac{9}{11} \text{ min}$$

$$180 + 60 = \underline{240}$$

$$\frac{480}{11} = 43\frac{7}{11} \text{ min}$$





Angle Given: Time?

$1:23\frac{7}{11}$

$1:52\frac{8}{11}$

PW

In between 1 o' clock and 2 o' clock at what time the hands of the clock make 100° ?

$360 - 100$

$$\frac{130}{5 \cdot 5} = \frac{260}{11} = 23\frac{7}{11}$$

$$\frac{290}{5 \cdot 5} = \frac{580}{11} = 52\frac{8}{11} \text{ min}$$



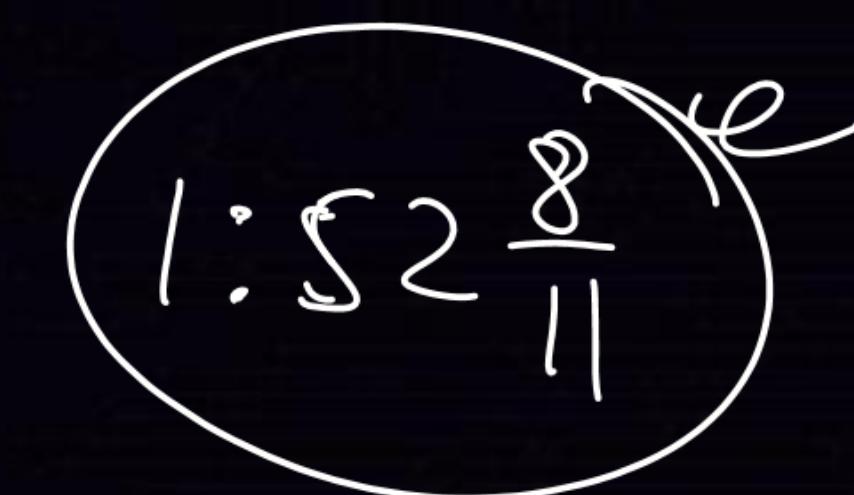


Other Way

In between 1 o' clock and 2 o' clock at what time the hands of the clock make $\underline{\underline{100^\circ}}$?

$$\frac{40}{5.5} = \frac{80}{11} = 7\frac{3}{11} \text{ min}$$

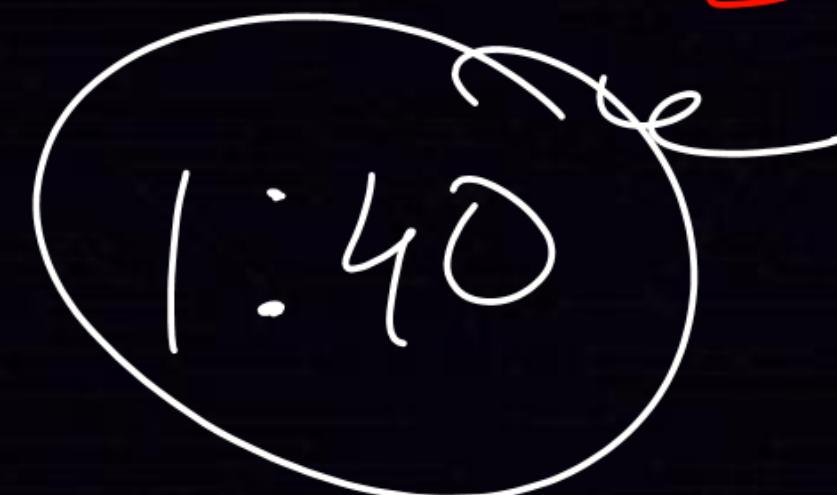
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GAIN OR LOOSE

A Clock which gains 5 minutes in every one hour was set correct at 5am. What would be the time shown by that clock at 1pm the same day?



$$\begin{array}{rcl} \text{Sam} - 1\text{pm} & = & \underline{\underline{8\text{hrs}}} \\ \times 5 \\ \hline + 40\text{min} \end{array}$$



GAIN OR LOOSE

A clock which looses 10 minutes in every one hour was set correct at 4am, what would be the time shown by that clock at 4pm the same day?

2pm

120 min



o. 2-3 @

60 + 90

$$\frac{150^\circ}{5 \cdot 5} = \frac{300}{11} = 27 \frac{3}{11}$$

$$\frac{330^\circ}{5 \cdot 5} = \frac{660}{11} = \cancel{60} \text{ min}$$

2:27 $\frac{3}{11}$ 44
yes





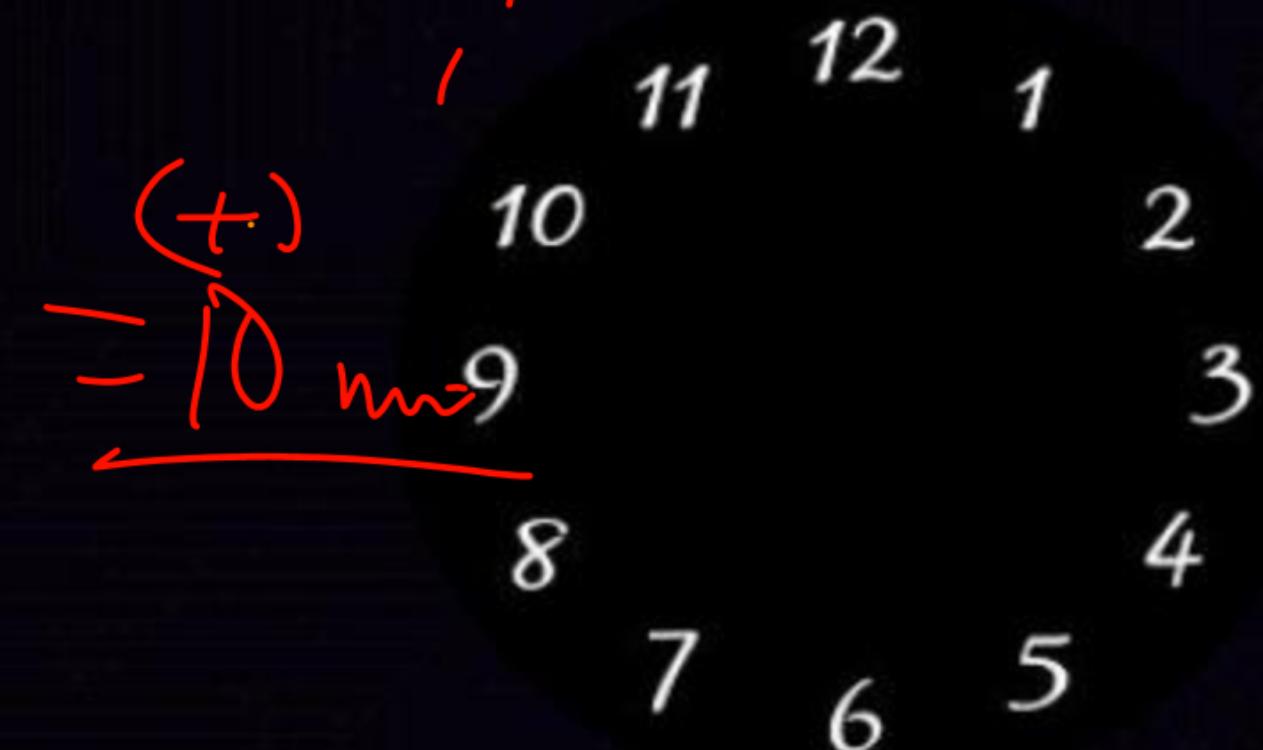
In a clock, the hour hand coincide with minute hand at an every interval of 65 minutes. Find how much does the clock gain or lose in a day.

$$\frac{360^\circ}{5.5} = \frac{720}{11}$$

$$= 65 \frac{5}{11} \text{ min}$$



$$\frac{S}{44} \times 2\pi^2$$

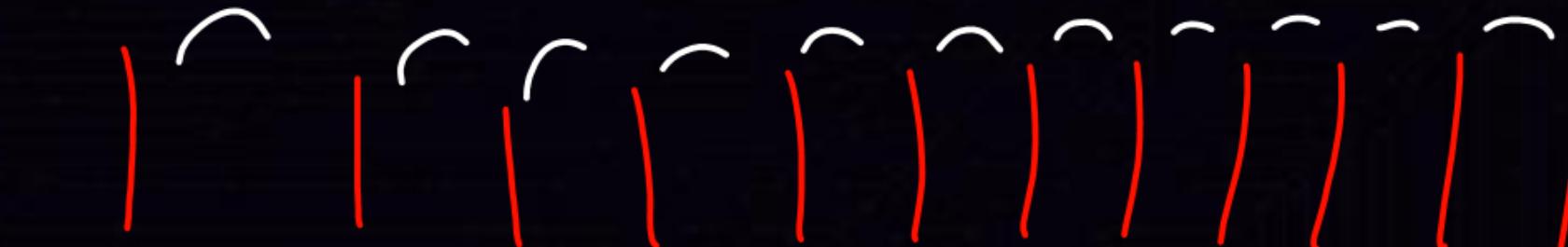




If a clock takes 22 seconds to strike 12,
how much time will it take to strike 6?

28 sec

= 22 sec



108 seconds

|| gap = 22 sec



11 12 1
10
9
8
7 6 5
4
3
2

