



# **CLOCKS AND CUBES**

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# Clocks

**An accurate clock shows 8'o clock in the morning. Through how many degrees will the hour hand rotate when the clock shows 2'o clock in the afternoon?**

- (a)  $144^\circ$
- (b)  $150^\circ$
- (c)  $168^\circ$
- (d)  $180^\circ$

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**Through how many degrees does the minute hand rotate between 3:00 AM to 3:15 AM?**

- (a)  $30^\circ$
- (b)  $90^\circ$
- (c)  $60^\circ$
- (d)  $30(5/11)^\circ$

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**At 3.40, the hour hand and the minute hand of a clock form an angle of :**

- (a)  $120^\circ$
- (b)  $125^\circ$
- (c)  $130^\circ$
- (d)  $135^\circ$

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**The angle between the minute hand and the hour hand of a clock when the time is 8.30 is:**

- (a)  $80^\circ$
- (b)  $75^\circ$
- (c)  $60^\circ$
- (d)  $105^\circ$

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**The angle between the minute hand and the hour hand of a clock when the time is 4:20 AM is :**

- (a)  $0^\circ$
- (b)  $10^\circ$
- (c)  $5^\circ$
- (d)  $20^\circ$

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**At which one of the following times, do the hour hand and the minute hand of a clock make an angle of  $180^\circ$  with each other?**

- A. Between 8:10 and 8:15
- B. At 8:10
- C. At 8:05
- D. Between 8:05 and 8:10

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At what angle the hands of a clock are inclined at 15 minutes past 5 ?

- (a)  $58\frac{1}{2}^\circ$  (b)  $64^\circ$  (c)  $67\frac{1}{2}^\circ$  (d)  $72\frac{1}{2}^\circ$

) At what time, in minutes, between 3'o clock and 4'o clock, both the needles will coincide each other?

- (a)  $5\frac{1}{11}$  (b)  $12\frac{4}{11}$  (c)  $13\frac{4}{11}$  (d)  $16\frac{4}{11}$

How many times do the hands of a clock coincide in a day?

- (a) 20 (b) 21 (c) 22 (d) 24

) At what time between 5.30 and 6 will the hands of a clock be at right angles ?

- (a)  $43\frac{5}{11}$  min. past 5 (b)  $43\frac{7}{11}$  min. past 5 (c) 40 min. past 5 (d) 45 min. past 5

How many times in a day, are the hands of a clock at right angle in a day?

- (a) 20 (b) 22 (c) 24 (d) 48



**A watch which gains uniformly is 2 minutes low at noon on Monday and is 4 min. 48 sec fast at 2 PM on the following Monday. When was it correct ?**

- (a) 2 PM on Tuesday
- (b) 2 PM on Wednesday
- (c) 3 PM on Thursday
- (d) 1 PM on Friday

**A watch which gains 5 seconds in 3 minutes was set right at 7 a.m. In the afternoon of the same day, when the watch indicated quarter past 4 o'clock, the true time is :**

- (a)  $59\frac{7}{12}$  min. past 3    (b) 4 p.m    (c)  $58\frac{7}{11}$  min. past 3    (d)  $2\frac{3}{11}$  min. past 4

# Cubes

A solid cube of each side 8 cm, has been painted red, blue and black on pairs of opposite faces. It is then cut into cubical blocks of each side 2 cm.

1. How many cubes have no face painted?

- A. 0
- B. 4
- C. 8
- D. 12

2. How many cubes have only one face painted?

- a. 8
- b. 16
- c. 24
- d. 28

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**3. How many cubes have only two faces painted?**

- a. 8
- b. 16
- c. 20
- d. 24

**4. How many cubes have only three faces painted?**

- a. 0
- b. 4
- c. 6
- d. 8

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**5. How many cubes have three faces painted with different colours?**

- a. 0**
- b. 4**
- c. 8**
- d. 12**

**6. How many cubes have two faces painted red and black and all other faces unpainted?**

- a. 4**
- b. 8**
- c. 16**
- d. 32**

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**7. How many cubes have at least one face blue?**

- a. 4**
- b. 8**
- c. 16**
- d. 64**

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**A cube is painted blue on two adjacent surfaces and black on the surfaces opposite to blue surfaces and green on the remaining faces. Now the cube is cut into 216 smaller cubes of equal size. How many smaller cubes have less than three surfaces painted?**

- a. 64
- b. 144
- c. 204
- d. 208

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**A cube is painted red on two adjacent faces and on one opposite face, yellow on two opposite faces and green on the remaining face. It is then cut into 64 equal cubes. How many cubes have only one red and one green face?**

- a. 4
- b. 8
- c. 12
- d. 16

**How many cuboids of dimensions 3 cm \* 4 cm \* 6 cm are required to form a cube of the least possible size?**

- a. 72
- b. 36
- c. 24
- d. 12

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**A cube has been cut into cuboids of dimensions 2 cm \* 3 cm \* 4 cm. What is the least possible length of the edge of the cube and how many such cuboids are obtained from this cube?**

- a. 24, 72
- b. 12, 36
- c. 24, 144
- d. 12, 72