



# MATHS

**BOOKS - MCGROW HILL EDUCATION**

**MATHS (HINGLISH)**

**PROBLEMS ON CUBES AND DICE**

## Example

1. Count the number of cubes in the following figure



A. 25

B. 30

C. 32

D. 34

**Answer: B**



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2. How many dots lie opposite the face having three dots, when the given figure is folded to form a cube ?



A. 2

B. 4


C. 5

D. 6

**Answer: D**



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3. A sheet of paper as shown in the figure is folded so as to form a cube. By identifying the faces, find the side opposite to  from amongst the following alternatives.



A. 

B. 

C.  $\infty$

D. 

**Answer: D**



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4. A wooden cube is painted BLUE on all six faces. The side of this cube is 4 cms. It is cut into smaller cubes of side 1 cm. Answer the following questions based on this statement.

How many cubes have three faces coloured?

A. 4

B. 8

C. 12

D. 16

**Answer: B**



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5. A wooden cube is painted BLUE on all six faces. The side of this cube is 4 cms. It is cut into smaller cubes of side 1 cm. Answer the following questions based on this statement.

How many cubes have two faces painted?

A. 8

B. 12

C. 16

D. 24

**Answer: D**



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**6.** A wooden cube is painted BLUE on all six faces. The side of this cube is 4 cms. It is cut into smaller cubes of side 1 cm. Answer the

following questions based on this statement.

How many cubes have only one face coloured?

A. 4

B. 8

C. 16

D. 24

**Answer: D**



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7. A wooden cube is painted BLUE on all six faces. The side of this cube is 4 cms. It is cut into smaller cubes of side 1 cm. Answer the following questions based on this statement.

How many cubes have no face coloured?

A. 24

B. 12

C. 16

D. 8

**Answer: D**



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8. A painter is given a task to paint a cubical box made of wood with three different colours: Red, Blue and Black with instructions that two opposite faces must have the same colour. He was asked to cut this box into 27 smaller cubes of equal size. Now answer the following questions.

How many smaller cubes will be there with no face painted at all?

A. 6

B. 8

C. 4

D. 1

**Answer: D**



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**9.** A painter is given a task to paint a cubical box made of wood with three different colours: Red, Blue and Black with instructions

that two opposite faces must have the same colour. He was asked to cut this box into 27 smaller cubes of equal size. Now answer the following questions.

How many cubes will be there with all the three colours on them?

A. 3

B. 6

C. 8

D. 9

**Answer: C**



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**10.** A painter is given a task to paint a cubical box made of wood with three different colours: Red, Blue and Black with instructions that two opposite faces must have the same colour. He was asked to cut this box into 27 smaller cubes of equal size. Now answer the following questions.

How many cubes will be there with only one face painted blue?

A. 0

B. 1

C. 2

D. 3

**Answer: C**



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**11.** A painter is given a task to paint a cubical box made of wood with three different colours: Red, Blue and Black with instructions

that two opposite faces must have the same colour. He was asked to cut this box into 27 smaller cubes of equal size. Now answer the following questions.

How many cubes will be there with two faces painted with blue and black colours?

A. 4

B. 2

C. 6

D. 8

**Answer: A**



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**12.** Two positions of a dice are shown. When 4 is at the bottom, what number will be on the top?



A. 1

B. 2

C. 5

D. 6



**Answer: A**



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**13.** In a dice a, b, c and d are written on adjacent faces, in the clockwise order and e and f at the top and bottom. When c is at the top, what will be at the bottom?



A. a

B. b

C. c

D. e

**Answer: A**



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**14.** A die is thrown three times and its three different positions are given below. Find the number on the face opposite 3.



A. 1

B. 6

C. 5

D. 4

**Answer: B**



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**15.** A die is thrown four times and its four different positions are given below. Find the

number on the face opposite to 3.



A. 1

B. 2

C. 4

D. 6

**Answer: C**



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1. Count the number of cubes in the following figures:



A. 8

B. 9

C. 10

D. 11

**Answer: C**



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2. Count the number of cubes in the following figures:



A. 15

B. 12

C. 18

D. 16

**Answer: A**



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3. Count the number of cubes in the following figures:



A. 57

B. 58

C. 60

D. 64

**Answer: B**



4. Count the number of cubes in the following figures:



A. 28

B. 36

C. 40

D. 42

**Answer: C**





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5. Count the number of cubes in the following figures:



A. 68

B. 69

C. 70

D. 71

**Answer: B**



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6. Count the number of cubes in the following figures:



A. 64

B. 68

C. 66

D. 70

**Answer: B**



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7. Count the number of cubes in the following figures:



A. 80

B. 85

C. 87

D. 89

**Answer: D**



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8. Count the number of cubes in the following figures:



A. 45

B. 50

C. 48

D. 46

**Answer: D**



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## Exercise 2

1. Choose from the alternatives, the boxes that will be formed when figure X is folded:



A. 

B. 

C. 

D. 

**Answer: B**

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2. When the figure X given below is folded to form a box which one of the following alternatives will give the similar box?



A. 

B. 

C. 

D. 

**Answer: D**

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**3.** Choose from the alternatives, the boxes that will be formed when figure (X) is folded:



A. A, B and D only

B. A, B and C only

C. B only

D. B and D only

**Answer: C**



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4. Choose from the alternatives, the boxes that will be formed when the figure X is folded.





A. B and C only

B. A, C and D only

C. B and D only

D. A and D only

**Answer: B**



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**5.** Choose from the alternatives, the boxes that will be formed when figure (X) is folded.



A. A and B only

B. B and C only

C. B and D only

D. A, B, C and D

**Answer: D**



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**6.** Choose from the alternatives (a), (b), (c), (d), the boxes that will be formed when figure (X)

given below is folded.



A. A and C only

B. B and C only

C. B and D only

D. A and D only

**Answer: A**



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7. Choose from the alternatives (a), (b), (c), (d) the boxes that will be formed when figure (X) given below is folded.



A. A only

B. A, B and C only

C. B and C only

D. A, B, C and D

**Answer: D**



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8. Choose from the alternatives, the boxes that will be formed when figure (X) is folded.



A. A and D only

B. C and D only

C. A and B only

D. B and C only

**Answer: A**





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### Exercise 3

1. A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. Answer the following questions.

How many cubes have no face coloured?

A. 24

B. 16

C. 8

D. 4

**Answer: C**



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2. A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. Answer the following questions.

How many cubes are there which have only one face painted?

A. 4

B. 6

C. 8

D. 16

**Answer: D**



**View Text Solution**

**3.** A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. Answer the following questions.



How many cubes have two red faces on opposite sides?

A. 0

B. 8

C. 16

D. 24

**Answer: A**



**View Text Solution**

4. A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. Answer the following questions.

How many cubes have three faces coloured?

A. 24

B. 16

C. 12

D. 8

**Answer: D**



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5. How many minimum number of colours will be required to paint all the sides of a cube without the adjacent sides having the same colours ?

A. 1

B. 2

C. 3

D. 4

**Answer: C**



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**6.** A cube is painted blue on all faces. It is cut into 125 smaller cubes of equal size.

How many cubes are not painted on any face?

- A. 8
- B. 16
- C. 18
- D. 27

**Answer: D**



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7. A cube is painted blue on all faces. It is cut into 125 smaller cubes of equal size.

How many cubes are painted on one face only?

A. 8

B. 16

C. 36

D. 54

**Answer: D**



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**8.** Six faces of a cube are coloured black, brown, green, red, white and blue, such that

(i) Red is opposite black

(ii) Green is between red and black

(iii) Blue is adjacent to white

(iv) Brown is adjacent to blue

(v) Red is at the bottom.

Answer the questions based on this

information.

Which colour is opposite brown?

A. White

B. Red

C. Green

D. Blue

**Answer: A**



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9. Six faces of a cube are coloured black, brown, green, red, white and blue, such that

(i) Red is opposite black

(ii) Green is between red and black

(iii) Blue is adjacent to white

(iv) Brown is adjacent to blue

(v) Red is at the bottom.

Answer the questions based on this information.

The four colours adjacent to one another are

A. Black, Blue, Brown, Red



B. Black, Blue, Brown, White

C. Black, Blue, Red, White

D. Black, Brown, Red, White

**Answer: D**



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**10.** Six faces of a cube are coloured black, brown, green, red, white and blue, such that

(i) Red is opposite black

(ii) Green is between red and black

(iii) Blue is adjacent to white

(iv) Brown is adjacent to blue

(v) Red is at the bottom.

Answer the questions based on this information.

Which colour, of the following can be deduced from (i) and (v)?

A. Black is on the top

B. Blue is on the top

C. Brown is on the top

D. Brown is on the top

**Answer: A**



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**11.** A solid cube of each side 10 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. Answer the following questions.

How many cubes have no face painted?

A. 12

B. 10

C. 8

D. 27

**Answer: D**



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**12.** A solid cube of each side 10 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. Answer the following

questions.

How many cubes have only one face painted?

A. 54

B. 36

C. 24

D. 12

**Answer: A**



**View Text Solution**

**13.** A solid cube of each side 10 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. Answer the following questions.

How many cubes have only two faces painted?

A. 18

B. 24

C. 36

D. 25

**Answer: C**



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**14.** A solid cube of each side 10 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. Answer the following questions.

How many cubes have three faces painted?

A. 0

B. 8

C. 12

D. 10

**Answer: B**



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**15.** A solid cube of each side 10 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. Answer the following



questions.

How many cubes have three faces painted with different colours?

A. 0

B. 4

C. 8

D. 12

**Answer: D**



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**16.** A solid cube of each side 10 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. Answer the following questions.

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

A. 36

B. 24

C. 12

D. 8

**Answer: C**



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**17.** A solid cube of each side 10 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. Answer the following questions.

How many cubes have only one face painted red and all other faces unpainted?

A. 18

B. 27

C. 24

D. 36

**Answer: A**



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**18.** A solid cube of each side 10 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. Answer the following questions.

How many cubes have two faces black?

A. 27

B. 9

C. 3

D. 0

**Answer: D**



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**19.** A solid cube of each side 10 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. Answer the following questions.

How many cubes have one face painted blue and one face painted red?

A. 18

B. 12

C. 27

D. 9

**Answer: B**



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**20.** A solid cube of each side 10 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. Answer the following questions.

How many cubes are there in all?

A. 250

B. 240

C. 125

D. 200

**Answer: C**



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## Exercise 4

1. Two positions of a block are given below.  
When 1 is at the top, which number will be at



the bot tom?



A. 1

B. 2

C. 3

D. 4

**Answer: D**



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2. Two positions of a cube are shown below.  
When the number 4 will be at the bottom,  
then which number will be at the top?



A. 3

B. 4

C. 5

D. 6

**Answer: A**



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3. A die is thrown three times and the different positions are given below.



How many dots lie opposite 2 dots?

A. 1

B. 3

C. 5

D. 6

**Answer: C**



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4. Find the number of dots on the face opposite the face bearing 3 dots.



A. 5

B. 6

C. 4

D. cannot be determined

**Answer: B**



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5. A die is thrown three times and its three different positions are noted as follow:



What numbers occur at the bottom face in the three positions of the same die?

A. 6,6,2

B. 5,6,1

C. 5,5,5

D. 6,5,2

**Answer: C**



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**6.** A die is thrown four times and its different positions are recorded as follow:



What number is opposite 3?

A. 2

B. 3

C. 4

D. 6

**Answer: C**



**View Text Solution**

7. A die is thrown four times and the different positions are recorded as follow:



Which number is on the face opposite 6?

A. 1

B. 2

C. 3

D. 4

**Answer: A**



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8. The six faces of a die have been marked with alphabets A, B, C, D, E and F respectively. This die is rolled down three times. The three positions are shown as:



Find the alphabet opposite (A)

A. B

B. C

C. D

D. E

**Answer: D**



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9. A cube has six different symbols drawn over its six faces. The symbols are dot, circle, triangle, square, cross and arrow. Three different positions of the cube are shown in figures (i), (ii) and (iii) below:



Which symbol is opposite Arrow?

A. Circle

B. Triangle

C. Dot

D. Cross

**Answer: B**



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**10.** Six dice with their top faces raised as shown below. The sum of the number of dots on the opposite faces is 7.



If the dice (i), (ii), (iii) have even number of dots on their bottom faces, then what would be the total number of dots on the top faces?

A. 14

B. 7

C. 21

D. 12

**Answer: B**



**View Text Solution**

**11.** Six dice with their top faces raised as shown below. The sum of the number of dots on the opposite faces is 7.



If dice (i), (ii), (iii) have even number of dots on their bottom faces and the dice (iv), (v), (vi) have odd number of dots on their top faces then what would be the difference in the total number of top face dots between these two sets?

A. 0

B. 1

C. 2

D. 3

**Answer: C**



**View Text Solution**

**12.** Six dice with their top faces raised as shown below. The sum of the number of dots on the opposite faces is 7.



If odd numbered dice have odd number of dots on their bottom faces what would be the total number of dots on the top faces of these dice?

A. 4

B. 6

C. 10

D. 12

**Answer: D**



**View Text Solution**

**13.** Six dice with their top faces raised as shown below. The sum of the number of dots on the opposite faces is 7.



If even numbered dice have even number of dots on their top faces what would be the total number of dots on the top faces of these dice?

A. 18

B. 14



C. 12

D. 10

**Answer: A**



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