

Class IX

Total Marks: 300



EDUDIGM

Bengal Talent Search Examination

Instructions:

- 1) Write your name on the questions paper and fill the OMR sheet immediately.
- 2) Do not start writing unless instructed
- 3) Use of calculators or other gadgets is not allowed.
- 4) There is no negative marking
- 5) There will be **no** clarification given about the correctness or the meaning of a question. If you have any doubt you can make a comment in the answer script provided. If you feel that there is a different answer to the choices provided, write that on the answer script.
- 6) No Extra sheet will be provided for the rough work
- 7) Any question paper without the Candidate's name could be disqualified.
- 8) Any attempt of unfair means will lead to immediate cancellation of the paper.
- 9) A student's paper can be cancelled without assigning any reason.

Marking Scheme:

- 1) Section I contains 60 questions. Each question carries 2.5 marks.
- 2) Section II contains 50 questions. Each question carries 2 marks.
- 3) Section III contains 10 questions. Each question carries variable marks as:
1-5, 2-5, 3-5, 4-8, 5-4, 6-4, 7-4, 8-5, 9-5, 10-5

Candidate's Name:

Duration: 2:00 Hrs.

Section-I

This section contains 60 Mathematics and Aptitude questions

Directions: In each of the following questions (1 to 5) the mathematical numbers are arranged in a particular order. There is a black space in each of the following questions. Choose the missing nunnery from the given alternatives and write its serial number on your answer sheet

1. 1, 3, 5, 7, 13, 12, 25, 18?

(a) 25 (b) 30 (c) 37 (d) 41

2. 3, 6, 12, 15, 30, 33?

(a) 36 (b) 39 (c) 60 (d) 66

3. 2, 9, 28, 65, 126?

(a) 187 (b) 217 (c) 242 (d) 244

4. 80, 63, 48, 35, 24?

(a) 13 (b) 15 (c) 17 (d) 19

5. 2, 5, 6, 8, 12, 14, 20, 23?

(a) 26 (b) 27 (c) 30 (d) 32

Directions: Out of the four choices given for each of the questions from 6 to 10, you have to select one that will maintain the same relationship on the two sides of the sign :: if it is substituted for the question mark '?'

6. XZTV : ? :: RTNP : JLFH

(a) PRNL (b) PRNM (c) PRLN (d) RPLN

7. ABCD : EFGH :: MPON : ?

(a) QTRS (b) TPRS (c) STQR (d) QTSR

8. LNPR : TVXZ :: FHJL : ?

(a) RPNT (b) NTRP (c) NPRT (d) RTNP

9. IKGE : JLHF :: LOIF : ?

(a) JPMG (b) MPGI (c) MPJG (d) PMGJ

10. TRUS : OMPN :: ? : JHKI

(a) LOMP (b) OMPN (c) LNMO (d) MPNP

Directions: Questions from 11 to 20 are based on logic. Write the correct answer

11. Amar is shorter than Bimal but not as short as Chaman. Ekta is shorter than Chaman. Dinesh is taller than Ekta who is not as short as Fatima. Who is shortest among the group?

(a) Amar (b) Ekta (c) Fatima (d) Bimal

12. In a class among the passed candidates in the annual examination, arun's position is 12th from top and 28th from bottom. If fifteen students failed, how many students appeared in the examination?

(a) 51 (b) 52 (c) 53 (d) 54

13. Five boys are sitting in a row. Pramod is on the right of Mukesh. Naresh is on the left of Mukesh but is on the right of Virendra. Anand is on the right of Pramod. Which boy is on the extreme left?

(a) Virendra (b) Anand (c) Pramod (d) Mukesh

14. Rani is Jayant's sister. Monica is Jayant's mother. Dinesh is Monica's father. Lata is Dinesh's mother. How is Rani related to Lata?

(a) Daughter (b) Grand daughter
(c) Great grand daughter (d) Great grand mother

15. If Friday falls after two days of 15th August, then what day it will be on the last day of August?

(a) Monday (b) Tuesday
(c) Thursday (d) Friday

16. Bimla is as old as Aruna but half as young as Fatima. Chameli is half the age of Aruna but is twice older than Divya. Which two ladies form the pair of the oldest and the youngest?

- (a) Fatima and Divya (b) Fatima and Bimala
(c) Fatima and Aruna (d) Aruna and Divya

17. If 'a' stands for addition 'b' for subtraction, 'g' for division and 'd' for multiplication, then what for does $6a7b10g5d3$ stand?

- (a) 4 (b) 5 (c) 6 (d) 7

18. If BACK is written as AZBJ, how is LACK written?

- (a) JZBJ (b) KZBJ (c) LZBJ (d) MZBJ

19. If America is coded as ckgpkac, how will Germany be coded?

- (a) ictkma (b) ictlcma
(c) ictkla (d) ictmopa

20. If $M=13$ and $MAD = 18$ what is MADAM equal to?

- (a) 31 (b) 32 (c) 33 (d) 34

Directions for question 21-25: In each of the following squares a different rule has been followed to fill up the numbers in the nine cells. Find out the rule and supply the number in the missing place where the question mark (?) is placed from among the four given choices

21.

3	4	5
3	7	12
3	?	22

(a) 8

(b) 9

(c) 10

(d) 11

22.

1	$\frac{1}{2}$	$\frac{1}{3}$
2	1	?
3	$\frac{3}{2}$	1

(a) $\frac{1}{3}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$

(d) 1

23.

2	4	6
4	6	10
?	10	16

(a) 2

(b) 6

(c) 10

(d) 12

24.

?	5	5
2	5	10
3	5	15

(a) 1

(b) 2

(c) 5

(d) 0

25.

1	$\frac{1}{2}$	$\frac{3}{2}$
2	$\frac{2}{3}$	$\frac{8}{3}$
3	?	$\frac{15}{4}$

(a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{3}{4}$ (d) $\frac{4}{5}$

Directions: Select the alternative whose alphabets when placed at the missing places, complete the chain

26. a-cd-cda-dab-abc

(a) b b c d

(b) b a a c

(c) a a c d

(d) b a c d

27.ab- bca-ab-bcb-a

(a) b a b a

(b) c c a c

(c) c b a c

(d) b a b c

28.a-bca-bc-bcca-bc

(a) b b c a

(b) b a c b

(c) a b a a

(D) a a b b

29.abc- bc-acab-a-c

(a) a b b b

(b) b c b a

(c) c c a b

(d) c a b b

30.d-ba-badb-dc-dcb

(a) c b d d

(b) b c a a

(c) c c a a

(d) a a c b

Directions for question 31-35: Column I in the following gives a word and column II gives its code against the word. You have to find out from amongst the four choices given for each question as to what is the corresponding code for each letter

Column I	Column II
BAL E	c d m k
WORLD	g j y n c
AIR	k a n
SOCK	h b t g
LOVER	d l g c n
SALE	k b c d
COIL	g c h a
VOILE	g c l d a
GOLF	c q s g
DONKEY	x t d g j c

Which is the code letter for:

	(1)	(2)	(3)	(4)
31.L	c	d	c	f
32.O	c	f	g	h
33.V	j	k	l	m
34.E	c	d	c	f
35.R	k	l	m	n

Instructions: In each of the following questions 36-40 the items are depicted by set of circles on the basis of relationship among items. Match the right set of items which corresponding set of circles. The size of the circles does not matter

36. India : Eath : Jupiter

- (1)
- (2)
- (3)
- (4)

37. Alphabet : Words : Paragraph

- (1)
- (2)
- (3)
- (4)

38. Natural numbers : Prime numbers :

Even numbers

- (1)
- (2)
- (3)
- (4)

39. President : Politician : Scientist

- (1)
- (2)
- (3)
- (4)

40. Reptiles : Snake : Lizard

- (1)
- (2)
- (3)
- (4)

Directions for questions 41-45: In the questions given below some relationships have been expressed through symbols which are defined as follows:

' \times ' stands for 'greater than'

Stands for 'not less than'

\div stands for 'not equal to'

ϕ stands for 'equal to'

+ stands for 'not greater than'

Δ stands for 'less than'

Now answer the following questions:

41. If $a \times b \Delta c$, then:

- (a) $a \Phi c \Delta b$ (b) $b \# a \times c$
 (c) $b \# a \times c$ (d) *none of these*

42. If $a \div b \div c$, then

- (a) $b \Delta c \times a$ (b) $b \times a \phi c$
 (c) $c \times b \Delta a$ (d) *none of these*

43. If $a \Delta b \Delta c$, then

- (a) $a \times c \times b$ (b) $b \# a \Delta c$
 (c) $b \times a \Delta c$ (d) $c \times b \times a$

44. If $a + b + c$, it does not imply that:

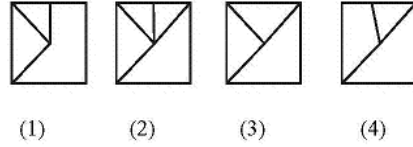
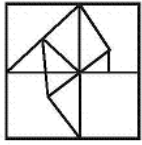
- (a) $a \phi b \Delta c$ (b) $c \phi b \Delta a$
 (c) $a \Delta b \Delta c$ (d) $a \Delta b \phi c$

45. If $a \# b \times c$ it implies that

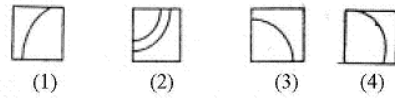
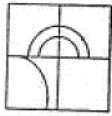
- (a) $a \times c + b$ (b) $c \times b \times a$
 (c) $b \times a \times c$ (d) $a \Delta b \# c$

Directions: in questions 46-50, choose the correct figure to complete the pattern in the problem figure. The blank square has to be filled by one of the four options

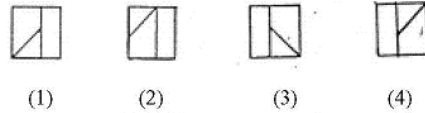
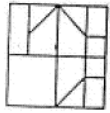
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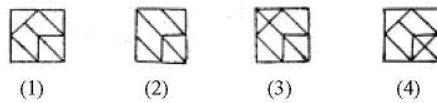
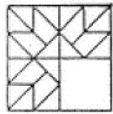
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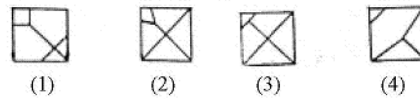
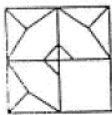
48



49.

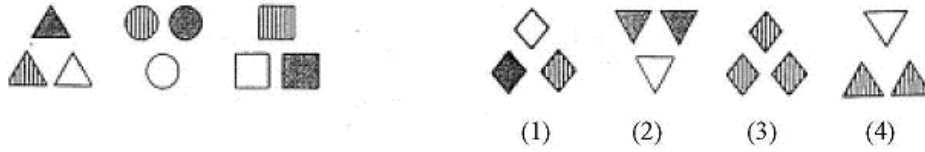


50.



Directions: In questions 51-55, select the answer figure which completes the given figure series

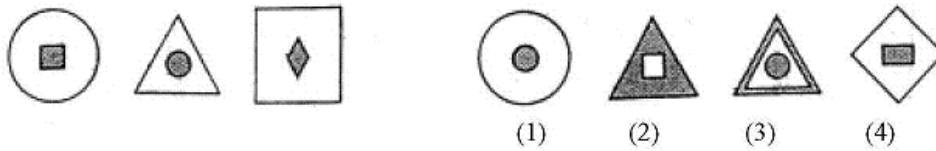
51.



52.



53.



54.



55.



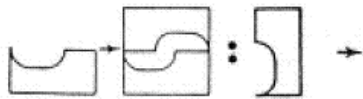
Directions: In questions 56-60 select the answer figure which has the same relationship to the third figure which is between the first two figures on the left of:

56.



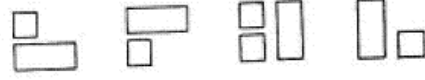
(1) (2) (3) (4)

57.



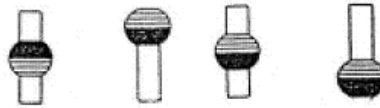
(1) (2) (3) (4)

58.



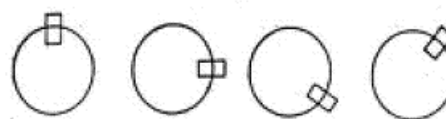
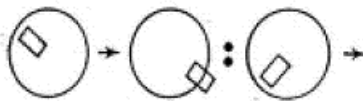
(1) (2) (3) (4)

59.



(1) (2) (3) (4)

60.



(1) (2) (3) (4)

Section-II

This section contains 50 science based questions

1. Lizards belong to which animal group?
(a) amphibians (b) reptiles (c) invertebrates (d) mammals
2. H₂O is the chemical formula of:
(a) hydrogen peroxide (b) ozone (c) ammonia (d) water
3. The nucleus of an atom consists of:
(a) electrons (b) neutrons (c) protons and neutrons
(d) protons, neutrons, and electrons
4. The third planet from the sun is:
(a) Mercury (b) Mars (c) Earth (d) Venus
5. Entomology is the scientific study of:
(a) internal organs (b) meanings of words (c) insects (d) trees
6. The green pigment found in plants that performs photosynthesis is:
(a) melanin (b) chloroplast (c) chlorophyll (d) chromatophore
7. An android is a robot that:
(a) is made to resemble a human in some way
(b) was built by a machine or other robots
(c) can make decisions or think for itself to some extent
(d) has been built to perform multiple tasks
8. A proton has what electrical charge?
(a) no charge (b) positive charge (c) negative charge
(d) either a positive or negative charge
9. How many legs do insects have?
(a) 4 (b) 6 (c) some have 6, some have 8 (d) 8
10. The ozone layer protects us from too much:
(a) carbon dioxide (b) gamma radiation (c) ultraviolet radiation
(d) temperature fluctuation
11. Earth is located in a galaxy we call the Milky Way. The Milky Way is shaped like:
(a) a sphere (b) a plate (c) a corkscrew (d) a flattened spiral
12. Gunpowder is made from:
(a) salt, pepper, and sugar (b) sulfur, charcoal, and salt

(c) saltpeter, sugar, and sodium hydroxide (d) sulfur, charcoal, and potassium nitrate

13. An igneous rock is one:

- (a) that formed as a result of temperature or pressure
- (b) that formed from deposition of sediments
- (c) which formed from cooled magma
- (d) that fell from space as meteorite

14. Bacterial cells are different from plant and animal cells in that they:

- (a) have no cell walls (b) do not have organelles
- (c) cannot move (d) do not contain DNA

15. The asteroid belt is located between:

- (a) Mars and Jupiter (b) Earth and Mars (c) Jupiter and Saturn
- (d) Venus and Earth

16. The primary function of xylem in plants is to:

- (a) exchange oxygen and carbon dioxide (b) transport water and minerals
- (c) perform photosynthesis (d) store glucose

17. The most abundant element in the universe is:

- (a) helium (b) hydrogen (c) carbon (d) silicon

18. A mineral is a natural crystalline solid that formed from geological processes. Which of the following is not an example of a mineral?

- (a) a diamond (b) wood (c) gold (d) salt

19. Some soils hold water better than others. The difference is caused by:

- (a) the heaviness of the grains of soil.
- (b) the size of the grains of soil.
- (c) the size of the spaces between the grains of soil.
- (d) the temperature of the water as it enters the soil.

20. Recycling refers to:

- (a) burning trash completely
- (b) burying trash in a landfill
- (c) reducing the amount of waste left over from using a product
- (d) reusing a resource to make something new

21. Which of the following usually is not a way to conserve water during a water shortage?

- (a) taking a shower instead of a bath
- (b) fixing leaky faucets
- (c) turning off the water while brushing your teeth
- (d) waiting until you have enough dishes to fill the dishwasher before running it

22. Which of the following is an example of matter?

- (a) atoms of the element carbon
- (b) a block of wood
- (c) my house
- (d) All of the above are examples of matter.

23. Grass appears green because:

- (a) It absorbs green light.
- (b) It reflects green light back to your eyes.
- (c) It reflects red light back to your eyes.
- (d) It absorbs all colours

24. A simple machine:

- (a) increases the amount of work required to perform a task.
- (b) decreases the amount of work required to perform a task.
- (c) requires the same amount of work to complete a task but is automated so that it does the work for you.
- (d) reduces the force or effort required to do a task or changes the direction of force used to perform a task.

25. A solar eclipse occurs when:

- (a) the Earth's shadow falls on the moon.
- (b) the moon's shadow falls on the Earth.
- (c) the Earth moves between the sun and the moon.
- (d) Venus is between the sun and the Earth.

26. Which planet is the brightest object in the sky, after the sun and moon?

- (a) Mercury
- (b) Venus
- (c) Mars
- (d) Jupiter

27. If you mix 500 ml of pure water and 500 ml of pure alcohol, with both liquids at 10°C, the resulting liquid will:

- (a) have a volume of 1000 ml and be the same temperature
- (b) have a volume of 1000 ml and be warmer
- (c) have a volume less than 1000 ml and be warmer

- (d) have a volume less than 1000 ml and be colder
28. Dinosaurs appear to have become extinct as a result of:
- (a) a meteorite impact
 - (b) a viral infection
 - (c) a volcanic eruption
 - (d) a climate change resulting from a change in solar activity
29. Which of the following elements is not a noble gas?
- (a) helium
 - (b) neon
 - (c) argon
 - (d) boron
30. An opossum is a:
- (a) rodent.
 - (b) marsupial.
 - (c) member of the squirrel family.
 - (d) species of animal that hibernates in the winter.
31. The date on which Mole Day is celebrated is related to Avogadro's Number. You would not celebrate Mole Day on:
- (a) February 6
 - (b) June 2
 - (c) July 10
 - (d) October 23
32. An anemometer is a device used to measure:
- (a) light intensity
 - (b) temperature
 - (c) relative humidity
 - (d) wind speed or pressure
33. What is the name given to the simple machine that uses grooved wheels and a rope to move, raise, or lower a load?
- (a) wheel and axle
 - (b) pulley
 - (c) lever
 - (d) inclined plane
34. Which part of a cell is responsible for making proteins?
- (a) mitochondria
 - (b) ribosomes
 - (c) lysosomes
 - (d) nucleus
35. Which of the following is a unit of power?
- (a) newton
 - (b) watt
 - (c) joule
 - (d) ampere
36. A boy sitting at the top of the stairs is an example of:
- (a) thermal energy
 - (b) chemical energy
 - (c) kinetic energy
 - (d) potential energy
37. The organ that produces insulin for the body is the:
- (a) liver
 - (b) kidney
 - (c) pancreas
 - (d) spleen
38. A huge ocean wave that may be caused by earthquakes, often under the ocean floor, is called a:
- (a) cyclone
 - (b) magma
 - (c) tsunami
 - (d) rip tide

39. Which of the following is an example of a producer?
(a) mushroom (b) grass (c) cow (d) snake
40. Hot molten rock under the surface of the earth is called:
(a) magma (b) lava (c) petroleum (d) geyser
41. The semipermeable membrane which encloses the cytoplasm of plant and animal cells is called the:
(a) endoplasmic reticulum (b) nuclear membrane
(c) cell wall (d) cell membrane
42. Helium is an example of:
(a) a halogen (b) an element (c) an alloy (d) a compound
43. Which of the following clouds might produce rain?
(a) all clouds can produce rain (b) cirrus
(c) cumulonimbus (d) cirrostratus
44. The seasons are caused by:
(a) change in distance to the Sun
(b) the tilt of the Earth's axis of rotation
(c) the magnetic poles switching direction
(d) the phase of the moon
45. Unlike most other fish, sharks have no:
a) Bones b) Teeth c) Gills d) Liver
46. The metal mercury:
a) Is the hardest known metal b) Is a liquid at room temperature
c) Is highly radioactive d) Is extensively used in aircraft construction
47. If you were to take a lump of coal and squeeze for a long time at very high temperatures, you would end up with:
a) Graphite b) Volcanic glass, also known as obsidian
c) A smaller lump of coal d) A diamond
48. Kinetic energy is:
a) Life energy, possessed only by living organisms
b) Only important at subatomic distances
c) Energy of movement
d) A rare form of energy sometimes observed in deep space

49. Charles Darwin began developing his theory of evolution while voyaging on a ship named:

- a) The Enterprise b) The Beagle c) The Santa Maria d) The Endeavour

50. What is special about Sirius, the Dog Star?

- a) It is the only star first observed by Albert Einstein
b) It is the brightest star in the night sky
c) It always lies directly above the North Pole
d) It emits staccato barking sounds which radio telescopes can detect

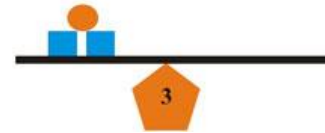
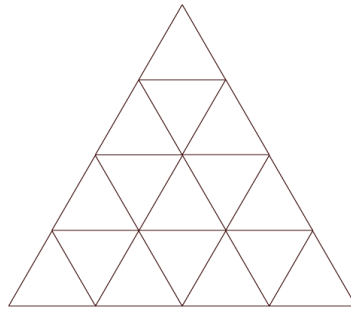
Section-III

This section contains 10 Puzzle based questions.

- 1) How many triangles will balance the third weight, if the first two are balanced.



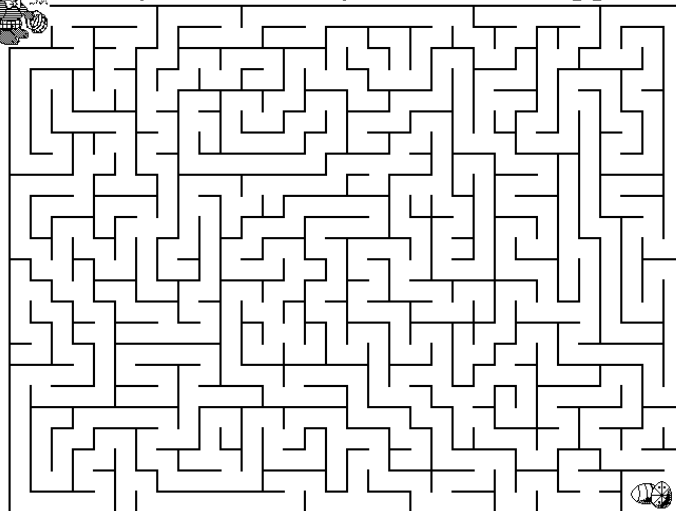
- 2) Count the number of triangles...



- 3)



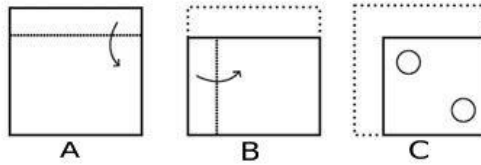
Help the Bunny Find the Eggs



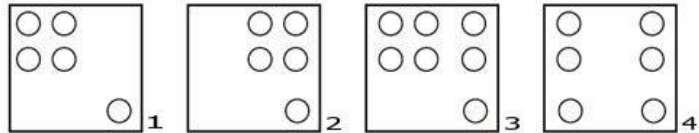
- 4) Each Sudoku has a unique solution that can be reached logically without guessing. Enter digits from 1 to 9 into the blank spaces. Every row must contain one of each digit. So must every column, as must every 3x3 square.

			6		8	7	9	1
5	8	6		9	1	4	3	2
	1	7				6	5	8
1		9	3		6		8	7
2	6	3	5	8	7		1	4
8	7		9		4	3	2	6
6	5		8			1		3
7		8	1				6	5
4	3			6				

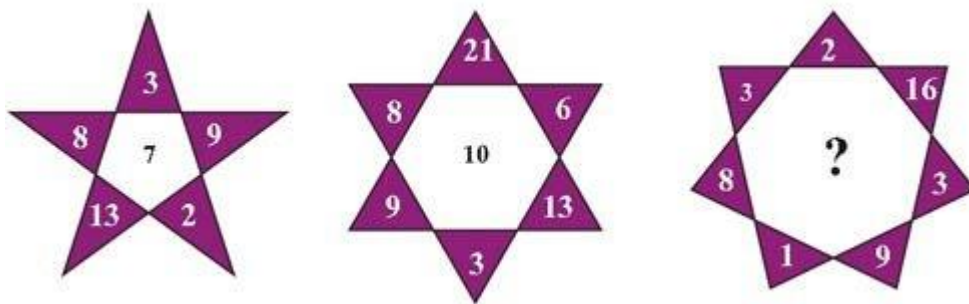
5) The three figures below show a sequence by which a piece of paper has been folded. The last figure shows how this folded paper has been cut.



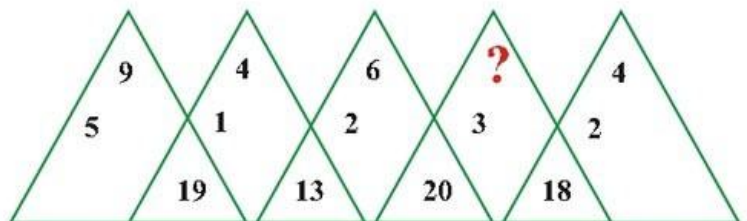
Which pattern (1-4) most closely resembles the unfolded form of figure C?



6) What number should appear inside the last purple star?



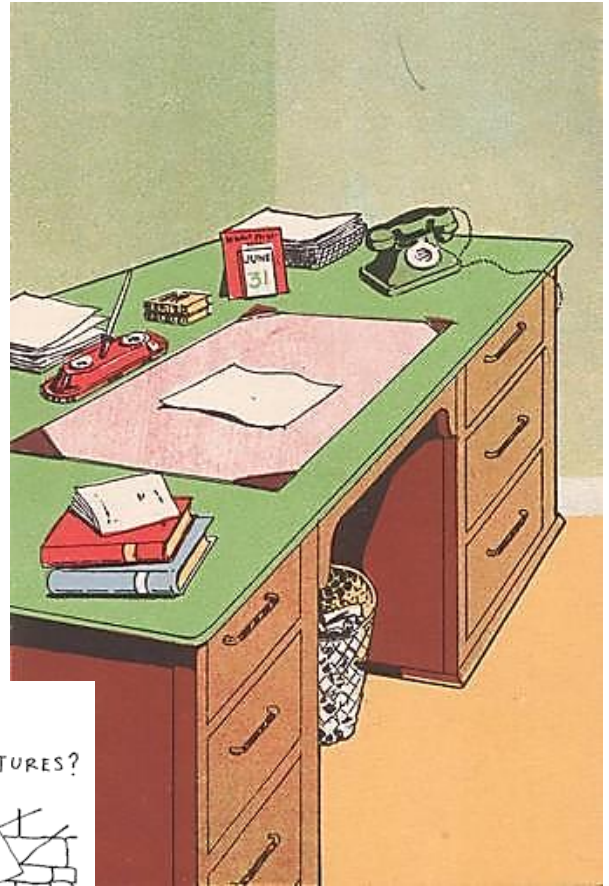
7) Can you figure out what number should replace the question mark?



8) A hundred square has been printed on both sides of a piece of paper. One square is directly behind the other. What comes behind 55?

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

9) This puzzle card shows what you might see on a desk from the 1930s. However, even for an old desk, something just isn't right. Can you find the fault?



10)

THE WEDDING AT CANA

CAN YOU SPOT THE 20 DIFFERENCES BETWEEN THESE TWO PICTURES?

