



UNIFIED COUNCIL

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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION - UN412

Solutions for Class : 5

Mathematics

1. (C) On extending the lines in **option (C)**, we get an angle where the two lines meet.
2. (A) $50000 \text{ cm} = 50000 \div 100 = 500 \text{ m}$
 $4 \text{ km} = 4 \times 1000 = 4000 \text{ m}$
 $500 \text{ m on land} \rightarrow 1 \text{ cm on the map}$
 $4000 \text{ m on land} \rightarrow 4000 \div 500$
 $= 8 \text{ cm on the map}$

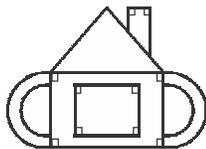
3. (A) $\frac{1}{6} + \frac{1}{6} = \frac{2}{6} = \frac{1}{3}$

4. (C) Discount = 15% of usual price

$$= \frac{15}{100} \times ₹ 120 = ₹ 18$$

$$\begin{aligned} \text{Amount of money paid} &= ₹ 120 - ₹ 18 \\ &= ₹ 102 \end{aligned}$$

5. (B)



Hence, there are **10 right angles** in the given figure.

6. (C) $0.7 = \frac{7}{10} = \frac{70}{100}$

Hence, there are **70 hundredths** in 0.7.

7. (C) L.C.M. of 12, 15, 20 and 35 = 420

$$\begin{array}{r} 420 \overline{) 1000} \quad (2 \\ \underline{840} \\ 160 \end{array}$$

∴ Required number

$$= 1000 + (420 - 160) = 1260.$$

8. (A) Smallest possible 6-digit number $\rightarrow 235679$

The place value of digit 6 is **hundreds**.

9. (D) $63 = 1 \times 3 \times 7 \times 3$

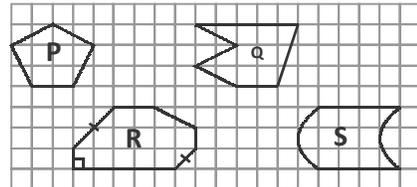
Factors of 63 are 1, 3, 7, 9, 21 and **63**.

Hence, the number is place of 😊 is 63.

10. (C)

	Figure P	Figure Q	Figure R	Figure S
Area	4	5	5	4
Perimetre	8	10	12	10

11. (C)



The **figure R** has both perpendicular and parallel lines.

12. (C) $\frac{4}{5} \text{ kg fish} + 2 \text{ kg squid} \rightarrow ₹ 52$

$$\frac{1}{4} \text{ kg fish} + 1 \text{ kg squid} \rightarrow ₹ 23$$

$$\frac{2}{4} \text{ kg fish} + 2 \text{ kg squid} \rightarrow ₹ 46$$

$$\frac{4}{5} \text{ kg fish} - \frac{1}{2} \text{ kg fish} \rightarrow ₹ 52 - ₹ 46$$

$$\frac{8}{10} \text{ kg fish} - \frac{5}{10} \text{ kg fish} \rightarrow ₹ 6$$

$$\frac{3}{10} \text{ kg fish} \rightarrow ₹ 6$$

$$\frac{1}{10} \text{ kg fish} \rightarrow ₹ 6 \div 3 = ₹ 2$$

$$1 \text{ kg fish} \rightarrow 10 \times ₹ 2 \\ = ₹ 20$$

$$\frac{1}{4} \text{ kg fish} \rightarrow ₹ 20 \div 4 \\ = ₹ 5$$

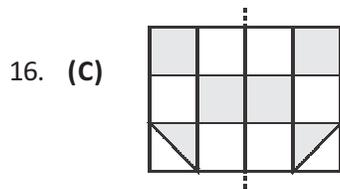
$$1 \text{ kg squid} \rightarrow ₹ 23 - ₹ 5 \\ = ₹ 18$$

$$3 \text{ kg squid} \rightarrow 3 \times ₹ 18 \\ = ₹ 54$$

13. (B) $63.12 = 63 \frac{12}{100} = 63 \frac{3}{25}$

14. (A) % of Ravi's score = $\frac{60}{150} \times 100 = 40\%$

15. (C) Amount of milk in 7 packets
 $= 7 \times 250 \text{ ml}$
 $= 1750 \text{ ml} = 1.75 \text{ l}$



Hence, 2 more squares are shaded to make the figure symmetric.

17. (A) Divisor = Quotient \times dividend + R.
 $= 5 \times 6 = 30$

Hence, the number is 30.

When 30 is divided by 30, the quotient is 1.

18. (A) Length of shaded rectangle = $12 \div 2 = 6$
 Breadth of shaded rectangle = $5 \div 2 = \frac{5}{2}$

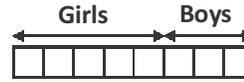
$$\therefore \text{Area of shaded part} = 6 \times \frac{5}{2} = 15 \text{ cm}^2$$

19. (C) $\frac{60 \text{ cm}}{2 \text{ m}} = \frac{60 \text{ cm}}{200 \text{ cm}} = \frac{3}{10}$

20. (A) Of the given statements only (i) is true.

21. (A) Mass of each can = $6.75 \div 5 = 1.35 \text{ kg}$
 Mass of 3 cans = $3 \times 1.35 = 4.05 \text{ kg}$
 The mass of 3 cans of baked beans is 4.05 kg.

22. (A) Fraction boys in class = $1 - \frac{5}{8} = \frac{3}{8}$



$$\text{Boys : Girls} \\ 3 : 5$$

\therefore Required ratio = 3 : 5

23. (D) Option (A): Length = $96 \div 8 = 12 \text{ cm}$
 Perimeter = $8 + 8 + 12 + 12 = 40 \text{ cm}$

Option (B): Breadth = $90 \div 15 = 6 \text{ cm}$
 Perimeter = $15 + 15 + 6 + 6 = 42 \text{ cm}$

Option (C) : Length = $110 \div 10 = 11 \text{ cm}$
 Perimeter = $10 + 10 + 11 + 11 = 42 \text{ cm}$

Option (D): Breadth = $100 \div 25 = 4 \text{ cm}$
 Perimeter = $25 + 25 + 4 + 4 = 58 \text{ cm}$

24. (D) Total height of four children
 $= (1.54 \times 2) + (1.62 \times 2) = 6.32 \text{ m}$
 Average height of 4 children
 $= 6.32 \div 4 = 1.58 \text{ m}$

25. (D) $792 \times 650 = (800 - 8) \times 650 = 800 \times 650 - 8 \times 650$

\therefore The required option is 8×650 .

26. (C) $2015 = 5 \times 13 \times 31$

$\therefore 31$ is a factor of 2015.

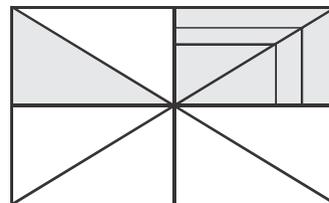
27. (C) Sum of three numbers = $500 - 74 = 426$
 \therefore Average of 3 numbers = $426 \div 3 = 142$

28. (B) In the given figure, CD and IJ are parallel lines

29. (C) Area of figure X = 8 units
 Area of figure Y = 11 units

\therefore Difference in the area of two figures = $11 - 8 = 3 \text{ units}$

30. (B)



3 out of 8 parts are shaded.

$$\therefore \text{Required fraction} = \frac{3}{8}$$

31. (B) There are **5 prime numbers** between 100 and 125. They are **101, 103, 107, 109 and 113**.

32. (D) Saving for 1 day = $\frac{20}{100} = ₹ 500 = ₹ 100$

$$₹ 1000 \div ₹ 100 = 10$$

Hence, he will take **10 days** to save ₹ 1000

33. (B) 3 m 4 cm = **304 cm**

$$6 \text{ m } 21 \text{ cm} = 621 \text{ cm}$$

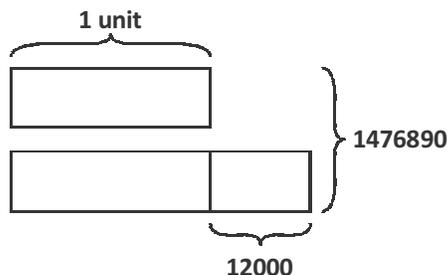
$$1 \text{ km } 1 \text{ m} = 1100 \text{ cm}$$

\therefore **3 m 4 cm** is the shortest length.

34. (C)
$$\begin{array}{r} 143.54 \\ -47.98 \\ \hline 95.56 \end{array}$$

When 95.56 is rounded off to the nearest whole number it will be **96**.

35. (C)



$$2 \text{ units} \rightarrow 1476890 - 12000 = 1464890$$

$$1 \text{ unit} \rightarrow 1464890 \div 2 = 732445$$

$$\text{Greater number} = 732445 + 12000 = \mathbf{744445}$$

36. (B) Length of the square = $4 + 4 = 8 \text{ cm}$

$$\text{Area of the shaded region} = 8 \times 4 = \mathbf{32 \text{ cm}^2}$$

37. (B) The area of the $\triangle XYZ$ cannot be

$$\frac{1}{2} \times AX \times XY.$$

38. (A) $20\frac{1}{4} - 9\frac{1}{5}$

$$= (20 - 9) + \left(\frac{1}{4} - \frac{1}{5}\right) = \mathbf{11\frac{1}{20}}$$

39. (A) **5040** is the multiple of all numbers from 1 to 10.

40. (A) $534.5 \xrightarrow{+10} 544.5 \xrightarrow{+10} 554.5 \xrightarrow{+10} \mathbf{564.5} \xrightarrow{+10} 574.5$

41. (A) Mass of Aneesh = 36 kg

$$\text{Mass of Keshav} = 36 + 8 = 44 \text{ kg}$$

$$\text{Mass of Vahid} = 44 - 10 = 34 \text{ kg}$$

$$\therefore \text{Average mass} = \frac{36 + 44 + 34}{3} = \mathbf{38 \text{ kg}}$$

42. (D) 60% of 600 g = $\frac{60}{100} \times 600 = \mathbf{360 \text{ g}}$

43. (A) Number of shaded triangles = 5

$$\text{Number of unshaded triangles} = 11$$

$$\text{Shaded parts} : \text{Unshaded parts} = \mathbf{5 : 11}$$

44. (B) $\frac{1}{2} \times 8 \times 4 = \mathbf{16 \text{ m}^2}$

45. (B) A car has 4 wheels and a motorcycle has 2 wheels. By 'guess and check' method,

Number of cars	Number of motorcycles	Total number of wheels
35	65	$35 \times 4 = 140$ $65 \times 2 = 130$ $140 + 130 = 270$
25	75	$25 \times 4 = 100$ $75 \times 2 = 150$ $100 + 150 = 250$
75	25	$75 \times 4 = 300$ $25 \times 2 = 50$ $300 + 50 = 350$
65	35	$65 \times 4 = 260$ $35 \times 2 = 70$ $260 + 70 = 330$

There were **25 cars**.

General Science

46. (D) In the given food chain the snake is a carnivore. It is a predator and a prey.

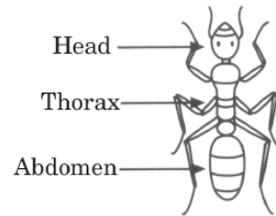
47. (C) A ship floats on water and iron ball sinks because ship is not completely solid. It has spaces that has air filled in it. So the average density of the ship as a whole is less than the density of water. Therefore the immersed portion of the ship displaces was equal to its weight. So the ship floats whereas the iron ball is compact and there are no air spaces inside it. Iron ball is denser than that of water. So it sinks.

48. (C) Mango is a flowering plant. It is reproduced by seeds and get dispersed by animals.

49. (B) The given figure is the arm of a man. It works same as the principle of lever.

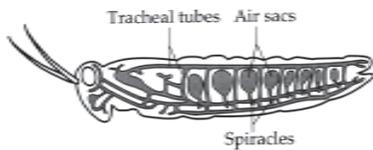
50. (D) The skin contains many endings of nerves. These are sensitive to pain, pressure, touch, heat and cold.
51. (B) A screwdriver is an example of wheel and axle.
52. (D) Cerebrum controls speech, memory and intelligence, cerebellum control body movements, medulla oblongata controls breathing rate and blood circulation.
53. (B) Tiny and light weight seeds are dispersed by wind.
54. (D) Sneezing immediately when we come across or enters into a place containing dust is an example of reflex action.
55. (D) A cockroach breathe through tracheal system. They have pores on their abdomen. Hence, when a cockroach with its head held underwater for three minutes will not die.
56. (D) Excretion, breathing and defecation are the life processes of all animals.
57. (B) Wheelbarrow is an example of second class lever. In second class lever load lies between fulcrum and effort.
58. (D) The seeds appear to come from a seed pod that has split. However, the seeds also have thin, paper-like 'wings'. These enable the seeds to float in the wind. Thus, the seeds would most likely be dispersed the farthest away from their parent plant by wind.
59. (C) The animals in group A have feathers, those in group B have hair and those in group C have shells. The animals are classified according to their body coverings.
60. (C) If tibia bone is fractured, it is called a broken leg.
61. (B) The force acting on the wood to float on water in the upward direction is called buoyant force.
62. (C) The axe head is an example of a wedge or dual inclined plane.
63. (B) The process of breaking of rock into small pieces by water and wind is called weathering.
64. (A) A tiger is a carnivore. It has stripes on its body with hair.
65. (A) Fur, scales, skin and feathers are the external outer coverings of animal bodies.
66. (B) Coal is formed from trees and other plants which died millions of years ago.

67. (A) Grassplants roots hold soil and thus prevent soil erosion.
68. (C) Fern plant reproduces by spores. Spores are found as black or brown dots on the lower side of the leaves.
69. (C) We can feel the rhythmical beating of the heart where an artery is compressed against a bone. Arteries are blood vessels that carry the blood pumped out by the heart.
70. (B) The three sections of the insect's body are the head, thorax and abdomen.



71. (A) Option A the snail is a molluscan and invertebrate with a shell on its body forms an exoskeleton.
72. (A) Our senses for taste, sound, sight and smell are all located on our head. Therefore most of our senses are protected by our skull.
73. (B) Camouflage is the disguise of an animal hiding from predators by blending with surroundings.
74. (B) The given animals bat (a mammal), bird and a butterfly (an insect) are aerial animals with wings and legs of different origin.
75. (B) The coconut's husk is fibrous. It has air trapped in between its husk. This makes it light and easy to float. Water carries these fruits and seeds to far off places.
76. (A) Water vapour from the hot water in the bottle drives out most of the air from the bottle. When the bottle is cooled, the water vapour condenses. There is almost no air in the bottle now and so the pressure inside the hot water bottle is less than that outside the bottle. Hence, there is a change in shape of a hot water bottle when poured with cold water on it.
77. (B) Fern is a green plant that can grow from spores.
78. (B) Birds fly with the help of wings they have hollow bones to have light body that help them to fly.
79. (C) Deficiency of iodine leads to goitre.
80. (D) Pumice is porous or full of holes.

81. (C) Deficiency of proteins in food causes kwashiorkor disease. Fish is rich in proteins.
82. (B) Tetanus spread by the germs which enter through cut skin.
83. (C) Corn, rice and potatoes are rich in carbohydrates.
84. (B) When baby seed starts to grow it is called germination.
85. (B) Insects do not have lungs and blood circulatory system like we do. Instead they have a system for tubes called the trachea.



86. (C) Vertebrates are animals that have backbones. Invertebrates are animals that do not have backbones.
- Warm-blooded animals are birds and

mammals animals whose body temperature does not change with the environment. Cold-blooded animals are animals whose body temperature changes with the environment. Frogs and birds reproduce by laying eggs.

87. (A) Amoeba is the smallest among the four animals mentioned. It is classified to be a microorganism which is very tiny. Fungus is bigger than amoeba but not bigger than human. Human is bigger than fungus but smaller than whale. In fact the largest animal ever existed is whale.
88. (C) The spinal cord is protected by the backbone which is labelled as R in the picture. The spinal cord connects nerves from different part of the body to the brain.
89. (C) Insects have three main body parts, two antennae and a hard outer covering. They also have six jointed legs.
90. (C) Birds are the only animals with feathers.

