Mental Maths Competition®

Organized by

Global Maths Science Education®

In Association with

Math Vision Pte Ltd., Singapore.

MOCK TEST

Std. 7

Instructions for the Competition

Total Marks : 200 **Total No of questions: 75**

1. Time : 1½hr
2. Students can use HB Pencil for marking answers in OMR sheet.
3. Questions are arranged according to 3 difficulty level to provide pupils with optimum explosure to Mental Maths.
4. [Section 1] In this section, there are 40 questions help to build calculation skills. Each question carries 2 marks.
5. [Section 2] It is related with 20 questions to test fundamental concept covered in topic listed below. Each question carries 3 marks.
6. [Section 3] Here questions are challanging & required high order thinking skills. Each question carry 4 marks. Students are requested to practice extra question given alongwith the Mock paper. Any 15 questions can be asked from given question format in mock paper & extra practice questions.

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SECTION 1 (Mental Maths Calculation)

1. $(21 \times 5) + (23 \times 6) =$ _____

(a) 241 (b) 243

(c) 240 (d) 248

2. $(95 \times 3) + (85 \times 2) =$ _____

(a) 355 (b) 555

(c) 455 (d) 595

3. $(65 \times 2) - (33 \times 3) =$ _____

(a) 41 (b) 42

(c) 21 (d) 31

4. $(56 \times 4) - (66 \times 2) =$ _____

(a) 82 (b) 62

(c) 92 (d) 102

5. (25% 68) + (50% of 26) = _____

(a) 30 (b) 40

(c) 25 (d) 45

6. (40% of 60) – (30% of 50) = _____

(a) 3 (b) 9

(c) 19 (d) 29

7. (half of 90) + ($\frac{1}{3}$ of 66) = _____

(a) 37 (b) 47

(c) 67 (d) 87

8. (one third of 150) – ($\frac{1}{4}$ of 120) = _____

(a) 30 (b) 20

(c) 40 (d) 90

9. (15% of 70) + (5% of 80) = _____

(a) 14.5 (b) 15.5

(c) 16.5 (d) 18.5

10. (20% of 90) + (5% of 80) = _____

(a) 23 (b) 25

(c) 22 (d) 24

11. square of 14 + square of 12 = _____

(a) 240 (b) 340

(c) 140 (d) 170

12. square of 16 – square 9 = _____

(a) 175 (b) 165

(c) 185 (d) 173

13. (cube of 9) + (cube of 8) = _____

(a) 1342 (b) 1341

(c) 1241 (d) 1242

14. (cube of 15) – (cube of 8) = _____

(a) 2865 (b) 2874
(c) 2763 (d) 2863

15. $\sqrt{529} \times \sqrt{144}$ = _____

(a) 276 (b) 376
(c) 277 (d) 476

16. $\sqrt{289} - \sqrt{169}$ = _____

(a) 2 (b) 4
(c) 1 (d) 3

17. $\sqrt{361} + \sqrt{256}$ = _____

(a) 37 (b) 36
(c) 34 (d) 35

18. $\sqrt{225} \div \sqrt{9}$ = _____

(a) 2 (b) 3
(c) 4 (d) 5

19. The sum of divisors of 36 is _____

(a) 81 (b) 91
(c) 93 (d) 83

20. The sum of all prime divisors of 48 is _____

(a) 5 (b) 6
(c) 82 (d) 9

21. Select the smallest number obtained from the given operations.

(a) 56 ÷ 8 (b) 66 ÷ 11
(c) 169 ÷ 3 (d) 95 ÷ 19

22. Select the greatest number obtained from following operations.

(a) $25 + \sqrt{49}$ (b) $\sqrt{169} - \sqrt{121}$
(c) $\sqrt{100} + 10^2$ (d) $10^2 - \sqrt{100}$

23. If 118 is divided by 23, the remainder is _____

(a) 1 (b) 2
(c) 3 (d) 4

24. If 220 is divided by 24, the remainder is _____

(a) 2 (b) 3
(c) 4 (d) 5

25. If 136 is divided by 22, the remainder is _____

(a) 2 (b) 5
(c) 4 (d) 6

26. If 174 is divided by 21 the remainder is _____

(a) 2 (b) 3
(c) 4 (d) 6

27. 4136 × 18 = _____

(a) 74443 (b) 74448

(c) 74441 (d) 74442

28. 9416 × 17 = _____

(a) 160072 (b) 170072

(c) 180072 (d) 190072

29. 4.23 × 16 = _____

(a) 37.68 (b) 67.68

(c) 37.86 (d) 87.96

30. 5.1 × 1.9 = _____

(a) 9.96 (b) 0.996

(c) 9.69 (d) 9.89

31. H.C.F of 40, 50, 60 is _____

(a) 10 (b) 50

(c) 60 (d) 40

32. L.C.M. of 12, 16 and 18 is _____

(a) 144 (b) 208

(c) 498 (d) 138

33. 27.076 + 9.005 + 3.7 = _____

(a) 49.781 (b) 39.781

(c) 27.509 (d) 27.511

34. 25 – 6.5 + 9.005 + 0.004 = _____

(a) 27.500 (b) 27.508

(c) 27.509 (d) 27.511

35. $4\frac{2}{3} + 3\frac{1}{4} =$

(a) $7\frac{3}{7}$ (b) $3\frac{11}{12}$

(c) $8\frac{11}{12}$ (d) $7\frac{11}{12}$

36. $\square - \frac{5}{8} = \frac{1}{4}$

(a) $\frac{7}{8}$ (b) $\frac{6}{8}$

(c) $\frac{9}{8}$ (d) $\frac{3}{8}$

37. (45 × 98) + (45 × 2) = _____

(a) 4300 (b) 4500

(c) 4800 (d) 4100

38. Double of 1037 is _____

(a) 1074 (b) 2084

(c) 2074 (d) 1174

39. Half of 4296 is _____

(a) 2148 (b) 2448

(c) 2248 (d) 2348

40. The ratio of 40 min to 2.5 hours is _____

(a) 4:17 (b) 4:18

(c) 4:13 (d) 4: 15

SECTION 2
(Mental Maths Concepts)

41. $[90 - \{50 \div (30 \div 3)\}] - 28$

(a) 57 (b) 77

(c) 67 (d) 87

42. Which of the following pairs of number do not have common factor other than 1.

(a) 25, 35 (b) 24,16

(c) 15, 8 (d) 48, 9

43. $[5^2 + 6^2 + 7^2] - \left[\sqrt{256}\right]$

(a) 91 (b) 92

(c) 93 (d) 94

44. $\left(\frac{5}{6} - \frac{1}{3}\right) + \left(\frac{4}{9} + \frac{2}{3}\right) =$

(a) $\frac{20}{18}$ (b) $\frac{19}{18}$

(c) $\frac{29}{18}$ (d) $\frac{14}{18}$

45. $0.4 \times 0.9 \times 1.2 =$ _____

(a) 0.422 (b) 0.432

(c) 43.2 (d) 0.0432

46. $0.49 \div 0.7 =$ _____

(a) 0.7 (b) 7

(c) 0.07 (d) 0.007

47. Ajinkya bought car for ` 2,50,000 after 6 months he sold it out at a loss of 15% find the selling price of a car.

(a) 2,10,500 (b) 2,13,500

(c) 2,11,500 (d) 2,12,500

48. On the purchase of a shirt and pant Rakesh got a discount of 10% and 5% respectively. If M.R.P. of shirt is ` 600 and pant is ` 900.How much he was to pay for 1shirt and 1 pant after discount

(a) ` 1395 (b) ` 1295

(c) ` 1195 (d) ` 1195

49. What will be the Sixth term in as per given number pattern 35, 47, 59, 71, 83, 95

(a) 107 (b) 71

(c) 83 (d) 95

50. Write as percentage $4\frac{4}{20}$

(a) 84% (b) 420%

(c) 8.4% (d) 42%

51. 24 centigram = ___ hectogram

(a) 0.24 (b) 0.0024

(c) 0.00024 (d) 0.024

52. 358 decilitre = _____Decalitre

(a) 35.8 (b) 0.358

(c) 3.588 (d) 3.58

53. Find the ratio of :-

1 and $\frac{1}{2}$ year, 2 years 2 months

(a) 19:26 (b) 17:26

(c) 9:13 (d) 1:2

54. The average of seven numbers is 8. If sum of first six numbers is 44 find the seventh number.

(a) 7 (b) 12

(c) 14 (d) 11

55. If the measure of two angles of triangle is 24^0 and 36^0 resp. Find the measure of remaining angle.

(a) 90^0 (b) 130^0

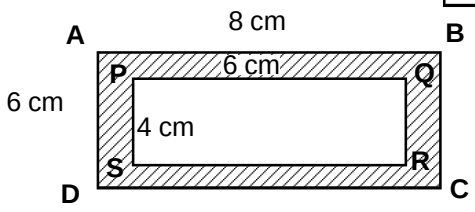
(c) 110^0 (d) 120^0

56. The measure of an angle is 32.5^0. Find the measure of its complementary angle.

(a) 57.5^0 (b) 58.5^0

(c) 56.5^0 (d) 147.5^0

57.



In the given rectangle ABCD and PQRS the area of shaded portion is _____ sq cm.

(a) 24 (b) 28

(c) 48 (d) 22

58. If the length of congruent sides of isosceles triangle is 4.7 cm and perimeter is 15.4 cm. The length of 3rd side is _____ cm

(a) 5 (b) 6

(c) 7 (d) 4.7

59. A square has a side of 25 cm. A smaller square of side 13 cm has been cut out of it. The area remaining is _____ sq. cm

(a) 456 (b) 465

(c) 454 (d) 450

60. If the radius of circle is 21 cm. Find it area if ($\pi = 22/7$)

(a) 1368 sq cm (b) 1384 sq cm

(c) 1385 sq cm (d) 1386 sq cm

SECTION 3 (Mental Maths Challenge)

61. During a sport day, there were 225 more boys than girls and there were 258 fewer teachers than girls. How many people were there altogether if there were 78 teachers?

(a) 561 (b) 975 (c) 957 (d) 560

62. A dinner of `1400 was shared by 6 people. If Mr. Shah paid ` 50 more than each of other people, how much did Mr. Shah pay?

(a) ` 225 (b) ` 275 (c) ` 250 (d) ` 300

63. 10 ball pens cost ` 75, how much do 2 dozens ball pen cost?

(a) ` 150 (b) `160 (c) ` 170 (d) ` 180

64. Mrs. Monica spent $\frac{3}{5}$ of her money and 440 is left. How much did she have first

(a) ` 1600 (b) ` 960 (c) ` 1100 (d) ` 2000

65. A kettle contains 5 / 500 m/ of water. if the water is poured into four 1.25 / bottles, how much water is left in a Kettle?

(a) 450 m/ (b) 750 m/ (c) 1.25 m/ (d) 500 m/

66. A Roll of paper 24 m long is placed in a fax machine. In every fax transmission received, the fax machine will use 30 cm of paper. What is the length of paper left if it receives 23 fax transmissions?

(a) 1870 cm (b) 1879 cm (c) 1710 cm (d) 1872 cm

67. Peter has scored 85 marks in his English test, but he has the same score for his History and Maths paper. If his average score for 3 subject is 87 marks. What score does he get for the Maths test?

(a) 85 (b) 86 (c) 87 (d) 88

68. Mr. Lobo spent 30% of his salary on transport. He spent 10% more on his rent than transport. If Mr. Lobo earned ` 4000, how much he saved in the end?

(a) ` 1000 (b) ` 1200 (c) ` 2400 (d) ` 1100

69. In a triangle ABC, measures of $\angle B$ is twice of measure of $\angle A$ and measure of $\angle C = 60°$, find the measure of $\angle A$.

(a) 60° (b) 80° (c) 40° (d) 120°

70. If the circular playground with the radius 14 metre is levelled at rate of ` 50 per square metre. The total cost of leveling the ground is ` _____

(a) 15400 (b) 15600 (c) 30800 (d) 30600

71. $\frac{(0.3)(0.3)+0.6\times0.2+(0.2\times0.2)}{(0.3+0.2)} = ?$

(a) 0.6 (b) 0.5 (c) 0.05 (d) 6

72. $\frac{\sqrt{m}}{3} = 4$ Find the value of m.

(a) 144 (b) 12 (c) 24 (d) 36

73. A profit of ` 30,000 is to be distributed among Amar, Akbar and Anthony in the ratio of 3:5:7. What will be the difference between Akbar's and Anthony's amount?

(a) ` 1000 (b) ` 2000 (c) ` 3000 (d) ` 4000

74. The traffic signals lights at three different road crossing change after every 48 seconds, 72 seconds and 108 seconds respectively. If they all change simultaneously at 8.20 hours, then they will again change simultaneously at _____

(a) 8:27:12 hrs (b) 8:27:36 hrs (c) 8: 27: 48 hrs (d) 8: 27: 24 hrs

75. If 60% of the students in a school are boys and the girls number is 812. How many boys are there?

(a) 1624 (b) 406 (c) 1218 (d) 1416

(Extra practise question)

1. 10% of 24.2 will be how much more than 10% of 24.02.

(a) 0.02 (b) 0.18 (c) 0.018 (d) 0.002

2. $\frac{1}{3\times5}+\frac{1}{5\times7}-\frac{9+1}{3\times5\times7}=?$

(a) 10 (b) 0 (c) $\frac{8}{3\times5\times7}$ (d) $\frac{7}{3\times7}$

3. $\frac{36\times0.003\times0.0035}{0.63\times0.8}=?$

(a) 7.5 (b) 0.0075 (c) 0.00075 (d) 1.5

4. $\sqrt{1+\frac{X}{144}}=\frac{13}{12}$ the value of X = ☐

(a) 0 (b) 12 (c) 13 (d) 25

5. Karim bought some toys at a discount of 20% on the original price. The original price of each toy is ` 400. If he makes total saving of ` 2400, How many toys did he buy ?

(a) 8 (b) 12 (c) 24 (d) 30

6. [9.7 - {6.38 - (18.17 - 14.39)}]

(a) 7.1 (b) 7.2 (c) 7.3 (d) 6.9

7. A motercycle gives an average of 50 km per litre. How much petrol is required to travel 735 km.

(a) 14 *l* (b) 14.6 *l* (c) 14.7 *l* (d) 15 *l*

8. At an end of term party, 12 chocolate cakes are shared equally between 40 children. How much did each child get.

(a) $\frac{6}{10}$ (b) $\frac{3}{10}$ (c) $\frac{9}{10}$ (d) $\frac{4}{10}$

9. The perimeter of rectangle is 56 meter and length is 3 times of breadth. Find the area of Rectangle.

(a) 147 sqm (b) 587 sqm (c) 588 sqm (d) 148 sqm

10. Mrs. Singh earns ` 3500 per month, After getting 10% increase in salary, calculate her monthly income as per new salary.

(a) ` 4620 (b) ` 4850 (c) ` 4610 (d) ` 3850

11. The sum of 5 consecutive even numbers is 180. Find the smallest of them.

(a) 26 (b) 30 (c) 18 (d) 32

12. The ratio's of the angles of triangle are 8:7:3 Find the difference between the greatest and the smallest angles of that triangle.

(a) 70^0 (b) 30^0 (c) 80^0 (d) 50^0

13. When an article is sold for ` 36, the loss is 20% What is the cost price of the article ?

(a) ` 16 (b) ` 28.80 (c) ` 43.20 (d) ` 45

14. Which of the following number is exactly divisible by eight.

(a) 18270 (b) 68286 (c) 58216 (d) 48188

15. $\left[4\frac{1}{2}+(5\frac{1}{3}\times 3)\right]-2\frac{2}{3}$

(a) $\frac{107}{6}$ (b) $\frac{108}{6}$ (c) $\frac{105}{6}$ (d) $\frac{109}{6}$

16. Parth walked $\frac{3}{8}$ km to his school, he walked 250m to his friend Suraj's house. Then he walked 1/2 km back to his home. How far did he walk?

(a) $\frac{5}{14}$ km (b) $\frac{7}{8}$ km (c) $\frac{9}{8}$ km (d) $\frac{1}{8}$ km

17. $4\frac{3}{4}-\left[\frac{5}{8}+(3\frac{1}{4}-\frac{1}{2})\right]=?$

(a) $\frac{9}{8}$ (b) $\frac{11}{8}$ (c) $\frac{53}{8}$ (d) $\frac{12}{8}$

18. How far will gas-filled balloon travel in 8 hours if it average speed is $10\frac{1}{2}$ km/hr.

(a) 80 km (b) 90 km (c) 84 km (d) 100 km

19. If $\frac{1}{4}\times 2\times$ ☐ $= \frac{1}{4}\times 16$ then ☐ ?

(a) 8 (b) 9 (c) 6 (d) 16

20. The vertex angle of isosceles triangle is 50. Find the measure ment of its base angles.

(a) 100 (b) 50 (c) 65 (d) 80

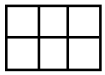
21. A dealer wishes to make a profit of 25% by selling an article. At what price should he sell the article, if the cost price is ` 200 ?

(a) ` 220 (b) ` 225 (c) ` 250 (d) ` 150

22. $\sqrt{1369}$ = ☐

(a) 33 (b) 37 (c) 23 (d) 27

23. The figure below is made up of similar small squares. If the area of the figure is 216 cm^2, then its perimeter is _____



(a) 56 cm (b) 6 cm (c) 120 cm (d) 60 cm

24. The smallest number, which when subtracted from the sum of the squares of 11 and 12 gives a perfect square is _____.

(a) 4 (b) 9 (c) 15 (d) 40

25. (0.74 + 0.26) × (0.07 + 0.5 + 0.43) = ?

(a) 0.5 (b) 0.55 (c) 0.1 (d) 1

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Answer Sheet

1	b		26	d		51	b
2	c		27	b		52	d
3	d		28	a		53	c
4	c		29	b		54	b
5	a		30	c		55	d
6	b		31	a		56	a
7	c		32	a		57	a
8	b		33	b		58	b
9	a		34	c		59	a
10	c		35	d		60	d
11	b		36	a		61	b
12	a		37	b		62	b
13	c		38	c		63	d
14	d		39	a		64	c
15	a		40	d		65	d
16	b		41	a		66	c
17	d		42	c		67	d
18	d		43	d		68	b
19	b		44	c		69	c
20	a		45	b		70	c
21	d		46	a		71	b
22	c		47	d		72	a
23	c		48	a		73	d
24	c		49	d		74	a
25	c		50	b		75	c

Answers for extra practice questions

1	c		9	a		17	b
2	b		10	d		18	c
3	c		11	d		19	a
4	d		12	d		20	c
5	d		13	d		21	c
6	a		14	c		22	b
7	c		15	a		23	d
8	b		16	c		24	d
						25	d

Section 3 (Solution)

61) Teachers → 78
Girls → 78 + 258
= 336
Boys → 336 + 225
= 561
Total no. of people = 78 + 336 + 561
= 975

62) 1400 – 50 = 1350
1350 ÷ 6 = 225
Mr. Shah paid = 225 + 50
= ` 275.

63) Cost of 10 ball pens = ` 75
∴ cost of 1 ball pen = $\frac{75}{10}$ = 7.5
cost of 2 dozen ball pens = 7.5 × 24
= ` 180

64) Mrs. Monica spent $\frac{3}{5}$
∴ Money left = $1 - \frac{3}{5}$
= $\frac{2}{5}$
$\frac{2}{5}$ of her money = 440
∴ Total money at first = $440 \div \frac{2}{5}$
= $440 \times \frac{5}{2}$
= 1100

65) 5 l 500 ml = 5500 ml
1 bottle = 1.25 l
= 1.25 × 1000
= 1250 ml
4 bottles = 4 × 1250
= 5000 ml
Water left in a kettle = 5500 – 5000
= 500 ml

66) 1 transmission = 30 cm
23 transmissions = 23 × 30
= 690 cm
paper left = 24 m – 690 cm
= 2400 – 690
= 1710 cm

67) Average score in 3 subjects = 87 marks
∴ total score in 3 subjects = 3 × 87
= 261.
marks scored in English = 85
∴ marks scored in Maths and History = 261 – 85
= 176
∴ Marks scored in Maths = $\frac{176}{2}$
= 88

68) Money spent on transport = $\frac{30}{100}$ × 4000
= 1200
Money spent on rent = $\frac{40}{100}$ × 4000
= 1600
Money saved = 4000 – 1200 – 1600
= 1200

Alternate method

Money spent on transport = 30%
Money spent on rent = 30 + 10 = 40%
Money saved = 100 – 30 – 40
= 30%
∴ Money saved = $\frac{30}{100}$ × 4000
= 1200

69) Let m ∠A = x°
∴ m ∠B = 2x°
m ∠C = 60°
m∠A + m∠B + m∠C = 180°
x + 2x + 60 = 180
3x + 60 = 180
3x = 180 – 60
3x = 120
x = $\frac{120}{3}$ x = 40°
∴ m ∠A = 40°

70) radius = 14 m
∴ Area of ground = πr^2
= $\frac{22}{7} \times 14 \times 14$
= 616 m²
Cost of levelling = 616 × 50
= 30800.

71) $\frac{(0.3)(0.3) + 0.6 \times 0.2 + (0.2 \times 0.2)}{(0.3 + 0.2)}$
= $\frac{(0.3)^2 + 2 \times 0.3 \times 0.2 + (0.2)^2}{(0.3 + 0.2)}$
= $\frac{(0.3 + 0.2)^2}{0.3 + 0.2}$ using $(a+b)^2 = a^2 + 2ab + b^2$
= $\frac{(0.5)^2}{0.5}$
= 0.5

72) $\frac{\sqrt{m}}{3}$ = 4
$\sqrt{m}$ = 4 × 3
$\sqrt{m}$ = 12
$(\sqrt{m})^2$ = $(12)^2$
m = 144

73) Amar : Akbar : Anthony = 3 : 5 : 7
difference between Akbar's and Anthony amount
= 7 – 5
= 2 units
∴ Actual difference = $\frac{2}{3+5+7}$ × 30000
= $\frac{2}{15}$ × 30000
= 4000.

74) L.C.M. of 48, 72 and 108 is 432.
Hence all three lights will change simultaneously after 432 seconds.
432 seconds = 7 min & 12 sec.
8 hrs. 20 min + 7 min 12 sec
= 8 : 27 : 12 hrs.

75)

Boys	Girls
60%	40%
x	812

∴ x = $\frac{60 \times 812}{40}$ = 1218

Extra Practice Questions (Solution)

1) 10% of 24.2 $= \frac{10}{100} \times 24.2 = 2.42$

10% of 24.02 $= \frac{10}{100} \times 24.02 = 2.402$

difference = 2.42 − 2.402 = 0.018

2) $\frac{1}{3 \times 5} + \frac{1}{5 \times 7} - \frac{9+1}{3 \times 5 \times 7}$

$= \frac{1 \times 7 + 1 \times 3 - 10}{3 \times 5 \times 7}$

$= \frac{0}{3 \times 5 \times 7}$

$= 0$

3) $\frac{36 \times 0.003 \times 0.0035}{0.63 \times 0.8}$

$= 0.00075$

4) $\sqrt{1 + \frac{x}{144}} = \frac{13}{12}$

$1 + \frac{x}{144} = \left(\frac{13}{12}\right)^2$

$\frac{144 + x}{144} = \frac{169}{144}$

$144 + x = 169$

$x = 169 - 144$

$x = 25$

5) Saving on one toy = 20%

$= \frac{20}{100} \times 400$

$= 80$

Total saving = Rs. 2400

No. of toys $= \frac{2400}{80}$

$= 30$

6) $[9.7 - \{6.38 - (18.17 - 14.39)\}]$

$= [9.7 - \{6.38 - 3.78\}]$

$= [9.7 - 2.6]$

$= 7.1$

7) Petrol required $= \frac{735}{50}$

$= 14.7\ l$

8) Share of each child $= \frac{12}{40}$

$= \frac{3}{10}$

9) Let the Breadth = x m

∴ Length = 3x m

2(Length + Breadth) = Perimeter

$2(x + 3x) = 56$

$8x = 56$

$x = \frac{56}{8} = 7$ m

Breadth = 7m

Length = $3 \times 7 = 21$ m

∴ Area of rectangle = Length × Breadth

$= 21 \times 7$

$= 147 m^2$

10) New salary $= 3500 + \frac{10}{100} \times 3500$

$= 3500 + 350$

$= 3850$

11) Let the 5 consecutive even numbers be x, x + 2, x + 4, x + 6, x + 8

∴ $x + x + 2 + x + 4 + x + 6 + x + 8 = 180$

$5x + 20 = 180$

$5x = 180 - 20$

$5x = 160$

$x = \frac{160}{5}$

$x = 32$

12) Ratio of angles = 8 : 7 : 3

difference between the largest and smallest

= 8 − 3 = 5

∴ Actual difference $= \frac{5}{8 + 7 + 3} \times 180$

$= \frac{5}{18} \times 180$

$= 50°$

13) Cost price — selling price

100 — 80

x — 36

$x = \frac{100 \times 36}{80} = 45$

14) For divisibility of eight, the number formed by last 3 digits should be divisible by 8

Hence the answer is 58<u>216</u>

15) $\left[4\frac{1}{2} + \left(5\frac{1}{3} \times 3\right)\right] - 2\frac{2}{3}$

$= \left[\frac{9}{2} + \left(\frac{16}{3} \times 3\right)\right] - \frac{8}{3}$

$= \left[\frac{9}{2} + 16\right] - \frac{8}{3}$

$= \frac{9 + 32}{2} - \frac{8}{3}$

$= \frac{41}{2} - \frac{8}{3}$

$= \frac{123 - 16}{6}$

$= \frac{107}{6}$

16) To school = $\frac{3}{8}$ km

To Suraj's house = 250m

$= \frac{250}{1000}$

$= \frac{1}{4}$ km

To home = $\frac{1}{2}$ km

Total = $\frac{3}{8} + \frac{1}{4} + \frac{1}{2}$

$= \frac{3+2+4}{8}$

$= \frac{9}{8}$

17) $4\frac{3}{4} - \left[\frac{5}{8} + \left(3\frac{1}{4} - \frac{1}{2}\right)\right]$

$= \frac{19}{4} - \left[\frac{5}{8} + \left(\frac{13}{4} - \frac{1}{2}\right)\right]$

$= \frac{19}{4} - \left[\frac{5}{8} + \frac{11}{4}\right]$

$= \frac{19}{4} - \left[\frac{5+22}{8}\right]$

$= \frac{19}{4} - \frac{27}{8}$

$= \frac{38-27}{8}$

$= \frac{11}{8}$

18) Average speed = $10\frac{1}{2}$ km/hr

$= \frac{21}{2}$ km/hr

Distance = speed × time

$= \frac{21}{2} \times 8$

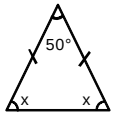
= 84 km

19) $\frac{1}{4} \times 2 \times x = \frac{1}{4} \times 16$

$\frac{1}{2} \times x = 4$

$x = 4 \times 2 = 8$

20)



$x + x + 50 = 180$

$2x = 180 - 50$

$2x = 130$

$x = \frac{130}{2}$

$x = 65$

21)

Cost price	Selling price
100	125
200	x

$x = \frac{200 \times 125}{100}$

$= 250$

22) $\sqrt{1369} = 37$

23) Area of 1 small square = $\frac{216}{6}$

$= 36$ cm²

side of small square = $\sqrt{36}$

= 6 cm

Length of rectangle = 6 × 3 = 18 cm

Breadth of rectangle = 6 × 2 = 12 cm

Perimeter of rectangle = 2 (18 + 12)

= 2 × 30

= 60 cm

24) $11^2 + 12^2 = 121 + 144$

$= 265$

Nearest perfect square is

$16^2 = 256$

∴ No. to be subtracted = 265 – 256

= 9

25) (0.74 + 0.26) × (0.07 + 0.5 + 0.43)

= 1 × 1

= 1

Mental Maths Competition®

(1) Q. No. 1 to 50 are based on basic. Calculation questions related to Addition, Subtraction, Multiplication and Division, doubling and halving.

(2) Student should know multiplication tables from 2 to 30.

(3) Number pattern. Doubling & Halving.

(4) Mixed operations (BODMAS), Decimal Fraction, Fractions, time

(5) L.C.M & H.C.F., divisibility of 2, 3, 4, 5, 6, 8, 9, 10, 11

(6) Integers (Add, Subtract, Multiply, Divide) Mixed sums

(7) Find day and date in a given calender year.

(8) Calculation of percentage, Average, Ratio, simple equation, discount, profit & Loss percentage.

(9) Square and Square root from 1 to 30, Cubing a number from 1 to 15

(10) Conversions: kg → hecto grm, deca gram, gram, decigram, centigram, miligram
km → hecto metre, deca mt, metre, deci mt, centi mt, mili mt.
kl → hecto litre, deca lt, litre, decilt, centi lt, mili lt.

(11) Area and perimeter of square and rectangle. Angles of a triangle.