Mental Maths Competition®

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Global Maths Science Education®
In Association with
Math Vision Pte Ltd., Singapore.

MOCK TEST

Std. 8

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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1. (38 × 12) + (38 × 48) = _____
(a) 2180   (b) 2280
(c) 2270   (d) 2260

2. (95 × 36) – (16 × 95) = _____
(a) 1700   (b) 1900
(c) 1850   (d) 1670

3. (12 × 37) + (6 × 9) + (18 × 17)= _____
(a) 714   (b) 624
(c) 804   (d) 914

4. (65 × 3) + (81 × 4) – (36 × 5)= _____
(a) 719   (b) 829
(c) 339   (d) 429

5. (81 × 5) – (36 × 5) + (13 × 9)= _____
(a) 342   (b) 442
(c) 312   (d) 412

6. (25% of 164) + (50% of 198) = _____
(a) 135   (b) 130
(c) 150   (d) 140

7. (50% of 168) – (25% of 136)= _____
(a) 30   (b) 40
(c) 50   (d) 60

8. (50% of 172) + (25% of 120)– (20% of 150) = _____
(a) 76   (b) 86
(c) 84   (d) 96

9. (half of 280) + (one third of 120) = _____
(a) 160   (b) 180
(c) 170   (d) 190

10. (one third of 360) – (half of 126) = _____
(a) 47   (b) 37
(c) 57   (d) 42

11. square of 36 + square 14 = _____
(a) 2028   (b) 1792
(c) 1592   (d) 1492

12. square of 85 – square 35 = _____
(a) 4000   (b) 3000
(c) 5000   (d) 6000

13. square of 30 + square of 20 – square of 15 = _____
(a) 1075   (b) 1065
(c) 1005   (d) 1035

14. square of 18 – square root of 625 = _____
    (a) 399   (b) 299
    (c) 199   (d) 499

15. square of 39 + cube root of 343 = _____
    (a) 1258   (b) 1528
    (c) 1529   (d) 1520

16. square root of 144 + cube of 8 = _____
    (a) 624   (b) 524
    (c) 512   (d) 634

17. cube of 5 + square root 1225 =
    (a) 130   (b) 140
    (c) 160   (d) 180

18. Sum of all the divisor of 45 = _____
    (a) 60   (b) 78
    (c) 70   (d) 40

19. Sum of all the divisor of 30
    (a) 32   (b) 82
    (c) 72   (d) 92

20. Sum of all prime divisors of 2310
    (a) 18   (b) 38
    (c) 48   (d) 28

21. Select the greatest number from the given operations.
    (a) 98 × 3   (b) 398 – 146
    (c) 98 + 126   (d) 23 × 16

22. Select the smallest number from the given operations.
    (a) 36 × 2   (b) 123 – 45
    (c) 108 ÷ 3   (d) 5 × 12

23. If 335 is divided by 25, the remainder is _____
    (a) 5   (b) 6
    (c) 9   (d) 10

24. If 968 is divided by 12, the remainder is _____
    (a) 11   (b) 3
    (c) 8   (d) 13

25. If 1098 is divided by 32, the remainder is _____
    (a) 10   (b) 20
    (c) 30   (d) 15

26. If 1225 is divided by 21, the remainder is _____
    (a) 0   (b) 2
    (c) 3   (d) 7

27. 9213 × 21 = _____
    (a) 193473   (b) 193483
    (c) 193493   (d) 193463

28. 1098 × 45 = _____
   (a) 49401   (b) 49410
   (c) 49510   (d) 49520

29. 3.95 × 1.2 = _____
   (a) 4.68   (b) 4.98
   (c) 4.74   (d) 4.12

30. 5.15 × 2.4 = _____
   (a) 13.36   (b) 12.36
   (c) 14.36   (d) 0.36

31. H.C.F. of 36, 72, 96 is _____
   (a) 13   (b) 14
   (c) 12   (d) 15

32. L.C.M. of 45, 36 and 72 is _____
   (a) 360   (b) 320
   (c) 180   (d) 350

33. 4 − 3.009 = _____
   (a) 0.961   (b) 0.993
   (c) 0.019   (d) 0.991

34. 15.85 + 36.92 − 12.21 = ____
   (a) 41.56   (b) 32.96
   (c) 40.56   (d) 90.56

35. $5\dfrac{1}{4} + 6\dfrac{1}{5} =$
   (a) $11\dfrac{3}{20}$ (b) $11\dfrac{9}{20}$
   (c) $11\dfrac{3}{21}$ (d) $10\dfrac{9}{20}$

36. $\boxed{} - 1\dfrac{1}{3} = \dfrac{5}{6}$
   (a) $2\dfrac{1}{6}$ (b) $3\dfrac{1}{5}$
   (c) $3\dfrac{1}{5}$ (d) $4\dfrac{1}{6}$

37. (1.36 × 2.9) + (7.1 × 1.36) = _____
   (a) 13.06   (b) 13.60
   (c) 13.006   (d) 13.0

38. Double of 3045 = _____
   (a) 6010   (b) 6070
   (c) 6090   (d) 6020

39. Half of 3098 = _____
   (a) 1649   (b) 1549
   (c) 1643   (d) 1540

40. The ratio of 45 min to 45 hour is _____
   (a) 1:16   (b) 1:30
   (c) 1:60   (d) 1:10

SECTION 2
(Mental Maths Concepts)

41. $160 \times 10 \div (5 \times 4) =$ _____
(a) 40   (b) 100
(c) 60   (d) 80

42. $94 - (31 - 103) =$ _____
(a) −22   (b) − 166
(c) 166   (d) 22

43. $-2 + \boxed{} = -9$
(a) 7   (b) − 7
(c) 11   (d) − 11

44. $(203 - 318) \div 23 =$ _____
(a) − 5   (b) − 6
(c) − 7   (d) 5

45. $(15) \times (2) + (-4) \times (5) \div (-5)$
(a) 34   (b) − 4
(c) 2   (d) − 2

46. $\dfrac{288}{360} = \boxed{}$
(a) $\dfrac{4}{5}$ (b) $\dfrac{6}{5}$
(c) $\dfrac{5}{4}$ (d) $\dfrac{6}{7}$

47. Find nineth term in the given series.
25, 36, 49, 64, ___, ___, ___
(a) 169   (b) 196
(c) 144   (d) 121

48. $\dfrac{4}{5} \div \dfrac{6}{25} \times \dfrac{8}{15} = \boxed{}$
(a) $\dfrac{9}{16}$ (b) $\dfrac{16}{9}$
(c) $\dfrac{4}{3}$ (d) $\dfrac{3}{4}$

49. $9 \times 38 + 9 \times 12 =$ _____
(a) 350   (b) 450
(c) 400   (d) 500

50. $125 \times 10 + 125 \times 90 =$ _____
(a) 1150   (b) 12500
(c) 13500   (d) 14500

51. $10.35 \div 1.5 =$ _____
(a) 6.5   (b) 6.7
(c) 6.9   (d) 6.4

52. $759 \div 1.1 =$ _____
(a) 660   (b) 690
(c) 630   (d) 670

53. $35:70 = 7:$ _____
(a) 9   (b) 8
(c) 7   (d) 14

54. If 3 bags of Soyabeen seeds cost ` 2250. Find the cost of 7 such bags.
(a) 5200   (b) 5250
(c) 5300   (d) 5270

55. The perimeter of triangle is 55 cm, if one of its side is 15 cm. If the other two side are equal find their lengths.

(a) 25 cm (b) 20 cm
(c) 30 cm (d) 28 cm

56. $\dfrac{2y}{3} = \dfrac{8}{15}$ then y = $\square$

(a) 0.8 (b) 0.4
(c) 0.9 (d) 0.5

57. The ratio of 1 meter: 60 cm is _____

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

58. The ratio of ` 2:75 paise = _____

(a) 8:3 (b) 3:8
(c) 5:3 (d) 3:5

59. 3t = 7t – 12, t = _____

(a) 0 (b) 1
(c) 2 (d) 3

60. Find the number whose 5% is 25.

(a) 50 (b) 500
(c) 1500 (d) 400

SECTION 3 (Mental Maths Challenge)

61. Raj purchased following items from the supermarket 10 kg atta at `15 per kg; 2 kg dal moong at ` 32.50 per kg, 1 kg dal Udad at ` 43.50 per kg and 1 kg sugar at ` 14.50 per kg. How much did he pay to the cashier, if the cashier gave him ` 27 back?

    (a) ` 165        (b) ` 235   (c) ` 273        (d) ` 300

62. Find the smallest number which on being divided by 20, 40, 60 and 75 leaves 18 as remainder.

    (a) 5   (b) 23   (c) 600   (d) 618

63. Find the radius of a circle whose circumference is 13.2 cm.

    (a) 1.4 cm   (b) 2.1 cm   (c) 4.2 cm   (d) 5.6 cm

64. A car travels 579.6 km in 9 hours. Find the distance covered in 5 hours.

    (a) 64.40 km   (b) 115.92 km   (c) 322 km   (d) 1043.28 km

65. If a library there were 5000 books. Out of this 675 books were discarded what percentage was discarded?

    (a) 8.5%   (b) 10%   (c) 13.5%   (d) 15%

66. Sunil bought an old motor cycle for ` 15000 and spent ` 3000 for its repairs. For how much shall be sale it to earn profit of 10%?

(a) ` 16500　　　　(b) ` 18000　　　　(c) ` 19800　　　　(d) ` 17500

67. To make 67 dresses 368.5 m of cloth was used. To make 75 dresses how much of the cloth will be required?

(a) 412.5 m　　　(b) 411.5 m　　　(c) 390 m　　　　(d) 395 m

68. $3[15.2 + \{(6.5 + 24.5) \times 2 + (7.8 - 2.3)\}] =$

(a) 155.1　　　　(b) 248.1　　　　(c) 310.2　　　　(d) 333.1

69. In a hostel the consumption of wheat by 180 students in 9 month is 3600 kg. Find the wheat required for 85 student in the same period.

(a) 1300 kg　　　(b) 1500 kg　　　(c) 1700 kg　　　(d) 1900 kg

70. The ratio of income to expenditure of Mr. Kiran is 9 : 8. Find his saving if his income is ` 18000.

(a) ` 1500　　　　(b) ` 2000　　　　(c) ` 2500　　　　(d) ` 3000

71. Calculate the number of years, months and days between 7-8-1992 and 3-5-2006.

(a) 14Y-3M-4D   (b) 14Y-8M-27D   (c) 13Y-3M-4D   (d) 13 Y-8M-27D

72. If x= 2, y = 1, z = 4 and a = 5, find the value of

$$\frac{xy}{z} - \frac{xy}{a}$$

(a) $\frac{3}{5}$ (b) $\frac{3}{10}$ (c) $\frac{1}{5}$ (d) $\frac{1}{10}$

73. Divide 0.0042 by 125.

(a) 0.0336   (b) 0.00336   (c) 0.000336   (d) 0.0000336

74. The square plot has a side 80 m long. Find the cost of levelling if at ` 6.50 per sq.metre.

(a) ` 0.4160     (b) ` 41.60   (c) ` 41600     (d) ` 4160

75. Simplify : 9.6 ÷ 12 + 0.32 × 10 – 1.1 = _____

(a) 2.77   (b) 2.9   (c) 3.5   (d) 5.1

(Extra practise question)

1. Ram, Ravina, Suresh and Srushti are respectively 12 yrs 3 months, 13 years 9 months, 13 year 7 months and 12 years 6 months old. Find their average age.
   (a) 12 yrs 6 months   (b) 12 yrs 11 months
   (c) 13 yrs 1 month   (d) 13 yrs 3 months

2. The H.C.F and L.C.M. of two number are 9 and 180 respectively. If one of the number is 36, find the other one.
   (a) 40   (b) 45   (c) 50   (d) 180

3. Andy borrows a sum of ` 3600 from Richa at the rate of 8% p.a. After 1 year 8 months, how much simple interest will he have to pay?
   (a) ` 288          (b) ` 480   (c) ` 518          (d) ` 648

4. There are 4800 books in a library. If 12.5% new books were purchased and 400 old books were discarded, how many books were left in the library?
   (a) 600   (b) 4400   (c) 5000   (d) 5400

5. Simplify: - 253850901 – 189872925 + 7523563
   (a) 71401539   (b) 71491539   (c) 71501539   (d) 71501439

6. A student has to secure 35% of the maximum marks to pass. He secures 280 marks and fails by 175 marks. Find the maximum marks.

(a) 500   (b) 800   (c) 1050   (d) 1300

7. $5\dfrac{1}{2} - \left[\dfrac{2}{5}\text{ of }\left\{\dfrac{2}{5}\text{ of }\dfrac{5}{6} + \left(\dfrac{7}{8} \div 1\dfrac{3}{4}\right)\right\}\right]$

(a) $4\dfrac{1}{3}$ (b) $4\dfrac{2}{3}$ (c) $5\dfrac{1}{6}$ (d) $5\dfrac{2}{3}$

8. Manan repaid ` 5500 in 8 months which he had borrowed at 13.5% per annum. How much simple interest did he pay.

(a) ` 247.50       (b) ` 371.25   (c) ` 495       (d) ` 742.50

9. Find the difference of the greatest and least numbers of five digits by formed by using 0, 1, 2, 3 and 4 once only.

(a) 30870   (b) 30906   (c) 31176   (d) 32976

10. What is the 6th term of the sequence shown?

      80, 40, 20, ...

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

11. A square & a rectangular plot of land have same perimeter. If the square is of side 60 cm & rectangle is of length 70 cm, then the area of the rectangle is

(a) 3500 cm²   (b) 2800 cm²   (c) 2500 cm²   (d) 2200 cm²

12. A boy is 25 yrs younger than his father. Three years ago, the boy's age was one-sixth of the age of his father, then present age of boy is

(a) 10 yrs   (b) 6 yrs   (c) 8 yrs   (d) 4 yrs

13. In a two digit number, the unit place digit is 2. If the digits are interchanged, the new number formed is $\dfrac{3}{8}$ times the old number. What is the number?

(a) 36   (b) 62   (c) 72   (d) 52

14. The speed of car is $54\dfrac{1}{2}$ km per hour. What is the distance travelled in $\dfrac{7}{2}$ hours & $\dfrac{35}{2}$ minutes?

(a) $\dfrac{4929}{48}$ km   (b) $\dfrac{9972}{48}$ km   (c) $\dfrac{9919}{48}$ km   (d) $\dfrac{2479}{24}$ km

15. A reduction of 20% in the price of sugar enables Mrs. Lal to buy an extra 5 kg of it for ` 320. What is the reduced price per kg?

(a) `12.80 per kg     (b) `14.60 per kg   (c) ` 16 per kg     (d) `16.90 per kg

16. This year, your brother Pratham will be 2yrs from being twice as old as your sister Jeet. The sum of Pratham's age & three times Jeet's age is 68. How old is Jeet?

    (a) 12 yrs   (b) 14 yrs   (c) 13 yrs   (d) 15 yrs

17. Which of the following expression is correct?

    (a) $7 \div 7 + 7 \times 7 = 50$ (b) $7 + 7 \div 7 \times 7 = 50$

    (c) $7 \times 7 \div 7 + 7 = 50$ (d) $7 - 7 \times 7 + 7 = 50$

18. A swimming pool is 30 m long & 15 wide. How many Kilolitres of water must be pumped into it so as to raise the level of water by 4.5 m?

    (a) 2.025 k*l*   (b) 20.25 k*l*   (c) 202.5 k*l*   (d) 2025 k*l*

19. If 96.5% of the students are present in the school & number of absent students is 42, find the total number of students in the school.

    (a) 1050   (b) 1200   (c) 1680   (d) 4053

20. The cost of a wall clock is ` 360. Find the selling price if the gain is 15%.

    (a) ` 54      (b) ` 306   (c) ` 414      (d) ` 423.50

21. Simplify:- $5\dfrac{1}{2} - \left\{ \dfrac{2}{5} \text{ of } \dfrac{5}{6} + \left(\dfrac{7}{8} \div 1\dfrac{3}{4} \right) \right\}$

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

22. In an office 10 clerks get a salary of ` 2400 each & 4 officers get a salary of ` 4500 each. Find the average salary of the employee in the office.

(a) ` 2400      (b) ` 3000   (c) ` 4500      (d) ` 6900

23. If two complementary angles are in the ratio 4:5. Find the smaller one.

(a) 40⁰   (b) 50⁰   (c) 80⁰   (d) 100⁰

24. The perimeter of a rectangular field is 240 m. If the length is 85 m, find its area.

(a) 2695 sqm   (b) 2795 sqm   (c) 2975 sqm   (d) 29.75 sqm

25. There were only two candidates in an election. One got 62% votes elected by a margin of 144 votes. The total number votes were

(a) 500   (b) 600   (c) 700   (d) 800

Answer Sheet

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

Answers for extra practice questions

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

61)

Atta	→	10 × 15	= 150
Moong dal	→	2 × 32.5	= 65
Udad dal	→	1 × 43.5	= 43.5
Sugar	→	1 × 14.5	= 14.5
Total	→		273

He paid to cashier = 273 + 27
= ` 300

62) L.C.M. of 20, 40, 60 and 75 is 600.
Hence required number = 600 + 18
= 618

63) Circumference = $2\pi r$

$13.2 = 2 \times \dfrac{22}{7} \times r$

$r = \dfrac{13.2 \times 7}{2 \times 22}$

$r = 2.1$ cm

64) Speed $= \dfrac{\text{distance}}{\text{time}}$

$= \dfrac{579.6}{9}$

= 64.4 km/hr

distance covered in 5 hrs. = 64.4 × 5
= 322 km

65) % of books discarded

$= \dfrac{675}{5000} \times 100$

= 13.5%

66) Total cost = 15000 + 3000
= 18000

cost price	selling price
100	110
18000	x

$x = \dfrac{18000 \times 110}{100}$

= 19800

67) Cloth required for 1 dress

$= \dfrac{368.5}{67}$

= 5.5 m

∴ Amt of cloth required
= 75 × 5.5m = 412.5m.

68) 3 [15.2 + {(16.5 + 24.5) × 2 + (7.8 – 2.3)}]
= 3 [15.2 + {31 × 2 + 5.5}]
= 3 [15.2 + {62 + 5.5}]
= 3 [15.2 + 67.5]
= 3 [82.7]
= 248.1

69)

Students	Months	Wheat
180	9	3600
85	9	x

Since No. of months is same,

$x = \dfrac{85 \times 3600}{180}$

= 1700

70) Income : expenses = 9 : 8
∴ Income : savings = 9 : 1

Income	savings
9	1
18000	x

$x = \dfrac{18000 \times 1}{9} = 2000$

71) From 7 – 8 – 1992 till 7 – 8 – 2005 is 13 years.
Then till 7 – 4 – 2006 is 8 months
Then till 3 – 5 – 2006 is 27 days.

72) $\dfrac{xy}{z} - \dfrac{xy}{a}$

$= \dfrac{(2)(1)}{4} - \dfrac{(2)(1)}{5}$

$= \dfrac{1}{2} - \dfrac{2}{5}$

$= \dfrac{5 - 4}{10}$

$= \dfrac{1}{10}$

73) $\dfrac{0.0042}{125} = 0.0000336$

74) Area of square = (80)^2
= 6400 m²
cost of levelling = 6400 × 6.50
= 41600

75) 9.6 ÷ 12 + 0.32 × 10 – 1.1
= 0.8 + 3.2 – 1.1
= 4 – 1.1
= 2.9

Extra Practice Questions (Solution)

1) Average age = $\dfrac{\text{Total age}}{4}$

$= \dfrac{(147 + 165 + 163 + 149)}{4}$ months

$= \dfrac{624}{4}$

$= 156$ months

$= 13$ years.

2) L.C.M × H.C.F = Product of two numbers

$9 × 180 = 36 × x$

$x = \dfrac{9 × 180}{36}$

$x = 45$

3) P = 3600, R = 8%, T = 1 yr 8 months = $1\frac{2}{3}$ yrs.

$SI = \dfrac{P\,T\,R}{100}$

$= \dfrac{3600 × 1\frac{2}{3} × 8}{100}$

$= 480$

4) No. of books = 4800

New books = $\dfrac{12.5}{100} × 4800 = 600$

discarded old books = 400

No. of books left = 4800 + 600 − 400

= 5000

5)
```
      253850901
  +     2523563
     261, 374, 464
  −  189, 872, 925
      71, 501, 539
```

6) Passing marks = 280 + 175

= 455

max. marks	passing marks
100	35
x	455

$x = \dfrac{455 × 100}{35} = 1300$

7) $5\frac{1}{2} - \left[\dfrac{2}{5} \text{ of } \left\{\dfrac{2}{5} \text{ of } \dfrac{5}{6} + \left(\dfrac{7}{8} ÷ 1\frac{3}{4}\right)\right\}\right]$

$= \dfrac{11}{2} - \left[\dfrac{2}{5}\text{of}\left\{\dfrac{1}{3} + \left(\dfrac{7}{8} ÷ \dfrac{7}{4}\right)\right\}\right]$

$= \dfrac{11}{2} - \left[\dfrac{2}{5}\text{of}\left\{\dfrac{1}{3} + \left(\dfrac{7}{8} × \dfrac{4}{7}\right)\right\}\right]$

$= \dfrac{11}{2} - \left[\dfrac{2}{5} \text{ of } \left\{\dfrac{1}{3} + \dfrac{1}{2}\right\}\right]$

$= \dfrac{11}{2} - \left[\dfrac{2}{5} \text{ of } \dfrac{2 + 3}{6}\right]$

$= \dfrac{11}{2} - \left[\dfrac{2}{5} \text{ of } \dfrac{5}{6}\right]$

$= \dfrac{11}{2} - \dfrac{1}{3}$

$= \dfrac{33 − 2}{6}$

$= \dfrac{31}{6}$

$= 5\frac{1}{6}$

8) P = 5500

T = 8 months = $\dfrac{2}{3}$ yr.

R = 13.5% p.a.

$SI = \dfrac{P\,T\,R}{100}$

$= \dfrac{5500 × \frac{2}{3} × 13.5}{100}$

$= 495$

9) Greatest number = 43, 210

least number = 10, 234

∴ difference = 32, 976

10) 80   40   20   10   5 $\dfrac{5}{2}$

÷ 2   ÷ 2

$\dfrac{5}{2} = 2\frac{1}{2}$

11) Perimeter of square = Perimeter of rectangle

4(60) = 2(70 + x)

240 = 140 + 2x

2x = 100

x = 50

Area of rectangle = 50 × 70

= 3500 cm²

12) Present age of boy = x

Present age of father = x + 25

3 yrs ago,

age of boy = x − 3

age of father = x + 25 − 3

= x + 22

Left column:

$$x - 3 = \frac{1}{6}(x + 22)$$

$$6(x - 3) = x + 22$$
$$6x - 18 = x + 22$$
$$6x - x = 22 + 18$$
$$5x = 40$$
$$x = 8$$

13) Let the ten's digit = x
∴ Number = 10x + 2
∴ Number obtained by interchanging the digits
= 20 + x

∴ $20 + x = \frac{3}{8}(10x + 2)$

$$160 + 8x = 30x + 6$$
$$160 - 6 = 30x - 8x$$
$$154 = 22x$$
$$x = 7$$

∴ The required number = 72

14) $\frac{7}{2}$ hrs and $\frac{35}{2}$ minutes

$$= \left(\frac{7}{2} + \frac{35}{2} \times \frac{1}{60}\right) hrs$$

$$= \frac{7}{2} + \frac{7}{24} \text{ hrs.}$$

$$= \frac{91}{24} \text{ hrs.}$$

distance = speed × time

$$= 54\frac{1}{2} \times \frac{91}{24}$$

$$= \frac{109}{2} \times \frac{91}{24}$$

$$= \frac{9919}{48} \text{ km}$$

15) Let the original
price = ` x per kg

∴ New price = $x + \frac{20}{100} \times x$

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

$$= \frac{4x}{5}$$

Original quantity = $\frac{320}{x}$

New quantity = $\frac{320}{4x/5}$

$$= \frac{320 \times 5}{4x}$$

$$= \frac{400}{x}$$

Right column:

∴ $\frac{400}{x} - \frac{320}{x} = 5$

$$\frac{80}{x} = 5$$

$$x = \frac{80}{5}$$

$$x = 16$$

∴ Original price = ` 16

reduced price = $16 - \frac{20}{100} \times 16$

$$= 12.80 \text{ per kg}$$

16) Present age of Jeet = x yrs.
Pratham's age = 2x – 2
∴ 3x + 2x – 2 = 68
5x = 70
x = 14

17) Option (a) is correct
7 ÷ 7 + 7 × 7
= 1 + 7 × 7
= 1 + 49
= 50

18) Volume = 30 × 15 × 4.5
= 2025 m³
= (2025 × 100 × 100 × 100)cm³

$$= \left(\frac{2025 \times 100 \times 100 \times 100}{1000}\right)l$$

$$= (2025 \times 1000)l$$

$$= \left(\frac{2025 \times 1000}{1000}\right)kl$$

$$= 2025 \ kl$$

19) Present students = 96.5%
∴ Absent students = 100 – 96.5
= 3.5%

∴ $\frac{3.5}{100} \times x = 42$

$$x = \frac{42 \times 100}{3.5}$$

$$x = 1200$$

20) C.P   S.P
100   115
360   x

$$x = \frac{360 \times 115}{100}$$

$$= 414$$

21) $5\frac{1}{2} - \left\{\frac{2}{5} \text{ of } \frac{5}{6} + \left(\frac{7}{8} \div 1\frac{3}{4}\right)\right\}$

$$= \frac{11}{2} - \left[\frac{2}{5} \text{of} \left\{\frac{5}{6} + \left(\frac{7}{8} \div \frac{7}{4}\right)\right\}\right]$$

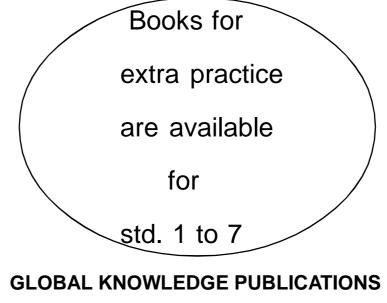$$= \frac{11}{2} - \left[\frac{2}{5} \text{ of } \left\{\frac{5}{6} + \left(\frac{7}{8} \times \frac{4}{7}\right)\right\}\right]$$

$$= \frac{11}{2} - \left[\frac{2}{5} \text{ of } \left\{\frac{5}{6} + \frac{1}{2}\right\}\right]$$

$$= \frac{11}{2} - \left[\frac{1}{3} + \frac{1}{2}\right]$$

$$= \frac{11}{2} - \frac{2+3}{6}$$

$$= \frac{11}{2} - \frac{5}{6}$$

$$= \frac{33-5}{6}$$

$$= \frac{28}{6}$$

$$= \frac{14}{3}$$

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

22) Total salary $= 10 \times 2400 + 4 \times 4500$
$= 24000 + 18000$
$= 42000$

Average salary $= \dfrac{42000}{14}$
$= 3000$

23) Smaller angle $= \dfrac{4}{4+5} \times 90$

$= \dfrac{4}{9} \times 90$

$= 40°$

24) $P = 2(l+b)$
$240 = 2(85+b)$
$120 = 85+b$
$b = 35$
∴ Area $= l \times b$
$= 85 \times 35$
$= 2975 \text{ m}^2$

25) Winner → 62%
Looser → $100 - 62 = 38\%$
Margin $= 62 - 38$
$= 24\%$

$\dfrac{24}{100} \times x = 144$

$x = \dfrac{144 \times 100}{24}$

$x = 600.$

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, speed distance

(9) Square and Square root from 1 to 50, 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, deci lt, centi lt, mili lt.

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

Books for

extra practice

are available

for

std. 1 to 7

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