(Talent & Olympiad Question)

Fractions

	Multi	ple	Choic	e Q	uest	ions
--	-------	-----	-------	-----	------	------

- 1. Find an equivalent fraction of $\frac{14}{35}$. (a) $\frac{27}{70}$ (b) $\frac{28}{35}$ (c) $\frac{70}{175}$ (d) $\frac{70}{350}$
- **2.** Observe the fractions given in the



Which symbol must be placed in the box to make the statement correct?

(a) < (b)	0) >
(c) = (c	d) Either (b) or (c)

- **3.** Which of the following improper fractions is equivalent to $15\frac{2}{7}$?
 - (a) $\frac{15}{14}$ (b) $\frac{107}{7}$ (c) $\frac{30}{7}$ (d) $\frac{37}{7}$
- **4.** Which mixed number is equal to $\frac{45}{14}$?
 - (a) $14\frac{3}{4}$ (b) $3\frac{1}{14}$ (c) $3\frac{3}{14}$ (d) $14\frac{1}{3}$

5.	What is the sum of $\frac{5}{13}$,	$\frac{11}{13}$ and $\frac{13}{13}$?
	(a) $14\frac{1}{13}$	(b) 1
	(c) $3\frac{2}{13}$	(d) $2\frac{3}{13}$
6.	By what number is $\frac{19}{25}$	lesser than $\frac{27}{25}$?
	(a) $\frac{8}{25}$	(b) $\frac{5}{25}$
	(c) $\frac{6}{25}$	(d) $\frac{9}{25}$
7.	What is the sum obtain	the when $\frac{8}{4}, \frac{9}{6}$ and $1\frac{3}{5}$
	(a) $5\frac{1}{10}$	(b) $\frac{59}{60}$
	(c) $5\frac{1}{30}$	(d) $\frac{59}{120}$
8.	Find the difference of	obtained when $\frac{9}{40}$ is
	subtracted from $\frac{23}{40}$.	
	(a) $\frac{25}{40}$	(b) $\frac{14}{40}$
	(c) $\frac{31}{40}$	(d) $\frac{32}{40}$
9.	Which of the following i	s a proper fraction?
	(a) $\frac{4}{3}$	(b) $\frac{16}{9}$

(c) $\frac{28}{15}$ (d) $\frac{11}{23}$

10. How is five-eighteenths written?

- (a) $\frac{5}{19}$ (b) $\frac{8}{15}$ (c) $\frac{5}{18}$ (d) $\frac{18}{5}$
- **11.** Observe the given figures.

What fraction does the shaded part in the figures represent?

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

- **12.** What is the reciprocal of $4\frac{2}{3}$? (a) $4\frac{3}{2}$ (b) $\frac{14}{3}$ (c) $\frac{3}{14}$ (d) $2\frac{4}{3}$
- **13.** Find the product of $1\frac{1}{3}$, $3\frac{1}{4}$ and $\frac{7}{8}$. (a) $3\frac{5}{24}$ (b) $3\frac{19}{24}$ (c) $3\frac{1}{24}$ (d) $19\frac{3}{7}$
- 14. Raju scored 8 marks in a maths test for 15 marks. How is Raju's marks represented as a fraction of maximum marks of the test?

(a)
$$\frac{15}{8}$$
 (b) $\frac{23}{18}$
(c) $\frac{8}{23}$ (d) $\frac{8}{15}$

15. Identify the largest fraction among the following.

(a) $\frac{29}{30}$	(b) $\frac{29}{23}$
29	29

- (c) $\frac{29}{27}$ (d) $\frac{29}{25}$
- 16. Gopal reads 3/5 of a book. He has still 80 pages to be read to complete reading the book. How many pages are there in the book?
 (a) 200
 (b) 100
 (c) 400
 (d) 300
- **17.** Ravi had $\frac{5}{6}$ of a cake. He ate $\frac{2}{3}$ of it. What part of the cake is remaining?
 - (a) $\frac{4}{9}$ (b) $\frac{5}{9}$ (c) $\frac{10}{18}$ (d) $\frac{1}{6}$
- 18. A family consumes 3¹/₂ litres of milk every day. How many litres of milk did the family consume in February 2013?
 (a) 91
 (b) 28
 (c) 56
 (d) 98
- **19.** What is the product obtained when a fraction is multiplied by its reciprocal?
 - (a) 0
 - (b) 1
 - (c) Reciprocal fraction
 - (d) The fraction itself

20. What is the sum of the reciprocals of 9 and $\frac{2}{9}$?

- (a) $(4 \times 11) + 18$
- (b) $(4 \times 8) + 11$

(c)
$$4\frac{11}{18}$$

(d) $11\frac{4}{18}$

21. Observe the number line given.



Which fraction represented on the number line is in a wrong place?

(a)
$$\frac{1}{2}$$
 (b) $\frac{1}{8}$
(c) $\frac{1}{4}$ (d) $\frac{3}{4}$

22. Which fraction shows the part of the circle that is shaded?



23. Which of the following is the same as $11\frac{3}{5} \times 15$?

(a)
$$11 \times \frac{45}{5}$$
 (b) $55 \times \frac{45}{5}$
(c) $165 \times \frac{45}{5}$ (d) 58×3

- **24.** How many tenths are there in $2\frac{4}{5}$? (a) 8 (b) 14
 - (c) 24 (d) 28
- **25.** $\frac{2}{5}$ of a number is 48. What is $\frac{3}{5}$ of the same number? (a) 50 (b) 72 (c) 56 (d) 78
- **26.** There are 60 insects in a miniature garden. 12 of the insects are ladybirds and $\frac{1}{4}$ of them are butterflies. The rest of the insects are ants. What fraction of the insects in the garden are ants?

(a)
$$\frac{1}{3}$$
 (b) $\frac{27}{20}$
(c) $\frac{11}{20}$ (d) $\frac{3}{4}$

- **27.** Find the fraction greater than $\frac{7}{8}$. (a) $\frac{2}{3}$ (b) $\frac{5}{8}$ (c) $\frac{9}{11}$ (d) $\frac{11}{12}$
- **28.** The mass of a flower pot is $13\frac{1}{3}kg$. The mass of a packet of soil is $4\frac{1}{5}kg$ heavier than the flower pot. What is the total mass of the flower pot and the packet of soil?

(a)
$$17\frac{8}{15}kg$$
 (b) $21\frac{11}{15}kg$
(c) $22\frac{7}{15}kg$ (d) $30\frac{13}{15}kg$

29. Study the pattern given.



What is the value of Z?

(a)
$$1\frac{17}{60}$$
 (b) $1\frac{7}{12}$
(c) $2\frac{47}{60}$ (d) $3\frac{47}{60}$

John had some pencils. $\frac{3}{5}$ of them were red and 30. the rest were green. He gave $\frac{2}{3}$ of the red pencils and $\frac{1}{4}$ of the green pencils to his sister. If he had 80 pencils left, how many pencils did he have at first?

(a) 240	(b) 40
(c) 160	(d) 200

31. What is 35 seconds as a fraction of 1 minute?

$(a)\frac{1}{4}$	(b) $\frac{1}{35}$
(c) $\frac{7}{12}$	(d) $\frac{7}{20}$

32. What is the missing number in the box?

	$\boxed{\frac{7}{10} - \frac{2}{5} + \frac{1}{2} = \frac{4}{?}}$
(a) 5	(b) 10
(c) 13	(d) 20

Bhanu bought $\frac{2}{3}m$ of ribbon to wrap 5 presents. 33. He used the same amount of ribbon for each present. What was the length of ribbon used for each present?

(a)
$$\frac{2}{17}m$$
 (b) $\frac{2}{15}m$
(c) $\frac{7}{15}m$ (d) $\frac{3}{17}m$

 $\frac{2}{3}$ of a number is smaller than thrice the same 34. number by 49. What is the number? (a) 14 (b) 35 (c) 21 (d) 28

Jamuna bought $\frac{7}{8}m$ of cloth to make a doll dress. 35. She used $\frac{2}{5}$ of the cloth. What length of the cloth is left? (_) 21 (h) 19

(a)
$$\frac{1}{40}m$$
 (b) $\frac{1}{40}m$
(c) $\frac{7}{20}m$ (d) $\frac{7}{10}m$

36. Study the pattern of fractions.



How is the missing fraction expressed as a mixed fraction?

(a) $6\frac{3}{7}$ (b) $7\frac{3}{5}$ (c) $3\frac{6}{7}$ (d) $6\frac{1}{7}$ **37.** What is the simplest form of 55 minutes as a fraction of $2\frac{1}{4}$ hours? (a) $\frac{10}{27}$ (b) $\frac{55}{59}$

(c)
$$\frac{12}{30}$$
 (d) $\frac{11}{27}$

38. 12 penguins shared $\frac{6}{7}kg$ of fish equally. How much fish did each one receive?

(a)
$$\frac{1}{4}kg$$
 (b) $\frac{1}{14}kg$
(c) $\frac{1}{11}kg$ (d) $\frac{4}{11}kg$

39. What is the value of $\frac{14}{15} \div 6$ in its lowest terms? (a) $\frac{7}{45}$ (b) $\frac{7}{15}$

(c)
$$\frac{14}{15}$$
 (d) $\frac{14}{90}$

40. After selling $4\frac{4}{5}kg$ of salt, a shop keeper had $4\frac{7}{10}$ of salt left. How much salt did he have at first?

(a)
$$\frac{95}{18}kg$$
 (b) $\frac{25}{33}kg$
(c) $9\frac{1}{2}kg$ (d) $\frac{1}{10}kg$

42. Which of the following is $\frac{16}{48}$ expressed in lowest terms?

(a)
$$\frac{8}{24}$$
 (b) $\frac{4}{12}$
(c) $\frac{1}{3}$ (d) $\frac{2}{6}$

43. Monica had $3\frac{1}{2}m$ of ribbon and Jaya had $\frac{2}{5}m$ of ribbon. How much more ribbon did Monica have?

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

44. Ajar can hold 61 of water. It can fill 8 mugs when it is full. How many litres of water can each mug hold?

(a)
$$\frac{3}{4}l$$
 (b) $1\frac{1}{3}l$
(c) 14 l (d) 48 l

45. Manish had Rs.45. He spent $\frac{3}{5}$ of it on a birthday present. How much had he left? (a) Rs.27 (b) Rs.18(c) Rs.9 (d) Rs.5

46. What must be added to $2\frac{2}{5}$ to give

(a)
$$\frac{9}{10}$$

(b) $1\frac{1}{5}$
(c) $\frac{5}{6}$
(d) $5\frac{7}{10}$

47. Mona is $\frac{1}{4}$ shorter than Aarti. If Mona is $1\frac{3}{8}m$ tall, how tall is Aarti?

(a)
$$1\frac{1}{8}m$$
 (b) $1\frac{1}{6}m$
(c) $1\frac{1}{4}m$ (d) $1\frac{5}{8}m$

48. 2 boys took a test. Pavan scored $\frac{4}{5}$ of what Prateek had scored. If Pavan scored 76 marks, what was their total marks?

(a)
$$15\frac{1}{9}l$$
 (b) $19\frac{3}{5}l$
(c) $19\frac{1}{5}l$ (d) $15\frac{3}{5}l$

49. Study the following equation.

$$2 \times ? = \frac{2}{5} \div 13$$

What is the missing fraction in the box?

(a)
$$\frac{3}{65}$$
 (b) $\frac{1}{65}$
(c) $\frac{7}{65}$ (d) $\frac{9}{65}$

50. Which of the following is $1\frac{1}{2}$ years as a fraction of 54 months?

(a)
$$\frac{2}{3}$$

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

51. The sum of the numerator and the denominator of a fraction is 67. When 31 is added to the denominator, the fraction becomes $\frac{3}{11}$. What was the original fraction?

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

52. Observe the given equation.



Identify the missing number in the box.

- (a) 15
- (b) 40
- (c) 25
- (d) 5

Answers with Explanation

 (c) Equivalent fraction of a given fraction is obtained by multiplying its numerator and denominator by the same number.

2. (a) On cross multiplication,
we get
$$9 \times 8 \times _15 \times 16$$

 $72 < 240$
 $\therefore \qquad \frac{9}{16} < \frac{15}{8}$
3. (b) $15\frac{2}{7} = \frac{15 \times 7 + 2}{7} = \frac{105 + 2}{7} = \frac{107}{7}$
4. (c) $\frac{45}{14} = 3\frac{3}{14}$
5. (d) $\frac{5}{13} + \frac{11}{13} + \frac{13}{13} = \frac{5 + 11 + 13}{13}$
 $= \frac{29}{13} = 2\frac{3}{13}$

6. (a) The required number

$$=\frac{27}{25} - \frac{19}{25} = \frac{27 - 19}{25} = \frac{8}{25}$$
(a) $\frac{8}{4} + \frac{9}{6} + 1\frac{3}{5} = \frac{20 + 15 + 16}{10}$

$$\frac{51}{10} = 5\frac{1}{10}$$

7.

8. (b) The required difference

$$=\frac{23}{40}-\frac{9}{40}=\frac{14}{40}$$

- **9.** (d) The numerator of a proper fraction is less than its denominator.
- **10.** (c) Five eighteenth = $\frac{5}{18}$
- **11.** (a) Two complete rectangles and a half rectangle are shaded. So, the required fraction is $2\frac{1}{2}$.
- **12.** (c) $4\frac{2}{3} = \frac{4 \times 3 + 2}{3} = \frac{14}{3}$ ∴ Its reciprocal is $\frac{3}{14}$.

13. (b) The required product

$$= 1\frac{1}{3} \times 3\frac{1}{4} \times \frac{7}{8}$$
$$= \frac{4}{3} \times \frac{13}{4} \times \frac{7}{8}$$
$$= \frac{13 \times 7}{3 \times 8} = \frac{91}{24} = 3\frac{19}{24}$$

14. (d)

15. (b)

16. (a) Part of the book read = $\frac{3}{5}$

∴ Part of the book left to be read

$$=1-\frac{3}{5}=\frac{2}{5}$$

No. of pages left to be read = 80

$$\therefore \frac{2}{5} \text{ part} = 80$$

 \therefore No. of pages in the book

$$=80 \times \frac{5}{2} = 40 \times 5 = 200$$

17. (a) Part of the cake Ravi had
$$=\frac{5}{6}$$

Part of the Ravi's cake eaten $=\frac{2}{3}$
 \therefore Part of the cake eaten $=\frac{2}{3} \times \frac{5}{6} = \frac{5}{9}$
 \therefore Remaining part of the cake $=1-\frac{5}{9}=\frac{4}{9}$

18. (d) Quantity of milk consumed in a day = $3\frac{1}{2}$ litres No. of days in February 2013 = 28 \therefore Quantity of milk consumed in

1

February $2013 = 3\frac{1}{2} \times 28 = 98$

- 19. (b) The product of a fraction and its reciprocal is1.
- **20.** (c) Reciprocals of 9 and $\frac{2}{9}$ are $\frac{1}{9}$ and $\frac{9}{2}$ respectively.

Their sum
$$= \frac{1}{9} + \frac{9}{2} = 4\frac{11}{18}$$

21. (b) $\frac{1}{8} < \frac{1}{4}$. So, it should lie between 0 and 1
22. (b) Two out of 8 parts are shaded. So, the fraction is $\frac{2}{8} = \frac{1}{4}$.
23. (d) $11\frac{3}{5} \times 15 = \frac{58}{5} \times 15 = 58 \times 3$
24. (d) $2\frac{4}{5} = \frac{14}{5} = \frac{28}{10} = 28 \times \frac{1}{10}$
Hence, there are 28 tenths in $2\frac{4}{5}$.
25. (b) $\frac{2}{5} \rightarrow 48$
 $\frac{1}{5} \rightarrow 48 \div 2 = 24$
 $\frac{5}{5} = 24 \times 5 = 120$
 $\therefore \frac{3}{5}$ of $120 = \frac{3}{5} \times 120 = 3 \times 24 = 72$
26. (c) No. of insects in the garden = 60
No. of ladybirds = 12
No. of butterflies $= \frac{1}{4} \times 60 = 15$
No. of ants = $[60 - (12 + 15)] = 33$
 \therefore The required fraction
 $= \frac{No. of ants}{2} = \frac{33}{5} = 11$

- Total no. of insects $= \frac{1}{60} = \frac{1}{20}$
- 27. (d) Convert all fractions to those with the same denominators and compare their numerators.

 \therefore The fraction greater than $\frac{7}{8}$ is $\frac{11}{12}$.

28. (d) Mass of a packet of soil = Mass of a flower pot + $4\frac{1}{5}kg$ = $13\frac{1}{2}kg + 4\frac{1}{5}kg = 17\frac{8}{5}kg$

$$= 13\frac{1}{3}kg + 4\frac{1}{5}kg = 17\frac{3}{15}kg$$

Total mass = $13\frac{1}{3}kg + 17\frac{8}{15}kg$

(c) Observing the given pattern, we find that the two fractions in a row add up to the one on its top row

i.e.,
$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$
 and $\frac{1}{4} + \frac{1}{5} = \frac{9}{20}$.
So, similarly,
 $X = \frac{1}{3} + \frac{1}{2} = \frac{2+3}{6} = \frac{5}{6}$
 $Y = \frac{5}{6} + \frac{3}{4} = \frac{10+9}{12} = \frac{19}{12}$
and $Z = \frac{19}{12} + 1\frac{1}{5} = 2\frac{47}{60}$
(c)
(c)
(a)
(b)
(c) $\frac{2}{3}$ of a number is smaller than thrice the same
number by 49.
So, $3(Number) - \frac{2}{3}(number) = 49$
 $= \left(3 - \frac{2}{3}\right)(Number) = 49$
 $= \left(\frac{9-2}{3}\right)(Number) = 49$
 $= \left(\frac{9-2}{3}\right)(Number) = 49$
 $= \left(\frac{9-2}{3}\right)(Number) = 49$

30. 31. 32. 33.

34.

35. (a) Fraction of cloth left = $1 - \frac{2}{5} = \frac{3}{5}$

 \therefore Length of the cloth left

~

$$=\frac{3}{5}\times\frac{7}{8}m=\frac{21}{40}m$$

36. (c)
$$\frac{3}{4}$$
, $1\frac{4}{5}$, $2\frac{5}{6}$, ?, $4\frac{7}{8}$
= $\frac{3}{4}$, $\frac{9}{5}$, $\frac{17}{6}$, \Box , $\frac{39}{8}$

 \therefore The missing fraction

$$=\frac{17+10}{6+1}=\frac{27}{7}=3\frac{6}{7}$$

(d) The required fraction = $\frac{55 \text{ minutes}}{2\frac{1}{4} \text{ hours}}$ 37.

$$=\frac{55}{\frac{9}{4}\times60}=\frac{55\times4}{9\times60}=\frac{11}{27}$$

38. (b) The required fraction

$$= \frac{6}{7}kg \div 12$$
$$= \left(\frac{6}{7} \times \frac{1}{12}\right)kg = \frac{1}{14}kg$$

(a) $\frac{14}{15} \div 6 = \frac{14}{15} \times \frac{1}{6}$ $=\frac{7}{15\times3}=\frac{7}{45}$

40. (c) Quantity of salt sold =
$$4\frac{4}{5}kg$$

Quantity of salt left = $4\frac{7}{10}kg$
 \therefore Quantity of salt in the shop at first
 $= 4\frac{4}{5} + 4\frac{7}{10} = 9\frac{1}{2}kg$
41. (c)

4

39.

42. (c)

43. (d)

- **44**. (a) Capacity of a ar $6\ell = 8$ mugs : Capacity of a mug $6\ell \div 8$
- (b) Amount Manish had = Rs. 45**45**.

Fraction of the amount spent = $\frac{3}{5}$

$$\therefore \text{ Amount left} = \left(1 - \frac{3}{5}\right) \times Rs. \ 45$$
$$= \frac{2}{5} \times Rs. \ 45 = Rs. \ 18$$

46. (a) The required number

$$=3\frac{3}{10}-2\frac{2}{5}=\frac{9}{10}$$

(d) Height of Aarti **47**.

= Height of Mona +
$$\frac{1}{4}m = 1\frac{5}{8}m$$

(b) Score of Pavan = $76 = \frac{4}{5}$ of score of Prateek **48**.

$$\frac{\frac{4}{5}}{\frac{5}{5}} \rightarrow 76 \times \frac{5}{4}$$

Λ

 $=19 \times 5 = 95$

 \therefore Their total marks = 76 + 95 = 171

(c) Volume of water in the tank = $\frac{4}{5} \times 32\ell$ **49**.

Volume of water poured into a pail

 $=\frac{1}{4}$ (volume of water in the tank)

Volume of water left in the tank

$$= \left(1 - \frac{1}{4}\right) \text{(volume of water in the tank)}$$
$$= \frac{3}{4} \times \frac{4}{5} \times 32\ell = \frac{3 \times 32}{5}\ell$$

51. (d)

52. (c) Numerator + Denominator =
$$67$$

After adding 31 to the denominator, the numerator is 3 units and denominator is 11 units. 3+11=14 units = 67+31=98

 $\therefore 1 \text{ unit } = 98 \div 14 = 7$

 $3 \text{ units } = 3 \times 7 = 21 \text{ and }$

11 units
$$= 11 \times 7 = 77$$

New fraction = $\frac{21}{77}$

Hence, the original fraction

$$=\frac{21}{77-31}=\frac{21}{46}$$

(D) $\frac{5}{6} \times 15 = \frac{?}{12} \times 30$ 53.

> On cancelling the factors common to numerator and denominator on both the sides,



Hence the missing number is 5.