

# Kangaroo.Study

## GEP MOCK

### EXAMINATION 2022

Subject: Maths

Total Duration: 1 hour 50 minutes

Name: \_\_\_\_\_

#### **INSTRUCTIONS TO PUPILS**

- 1. Do not turn over this page until you are told to do so.**
- 2. Follow all instructions carefully.**
- 3. Q1-Q25: choose the correct answer and write its corresponding letter in the space provided.**
- 4. Q26-Q50: write your answer in the space provided.**

1. Calculate:  $264 + 451 - 216 + 136 - 184 + 149$ .

- A. 760      B. 500      C. 400      D. 700      E. 600

Answer: \_\_\_\_\_

2. Find the largest number of  $\frac{3}{7}, \frac{1}{8}, \frac{4}{7}, \frac{3}{8}, \frac{1}{4}$ .

- A.  $\frac{3}{7}$       B.  $\frac{3}{8}$       C.  $\frac{4}{7}$       D.  $\frac{1}{4}$       E.  $\frac{1}{8}$

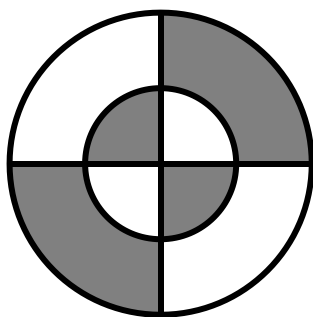
Answer: \_\_\_\_\_

3. If  $a \otimes b = b + b + b - a - a$ , find the value of  $6 \otimes 7$ .

- A. 42      B. 4      C. 9      D. 11      E. 33

Answer: \_\_\_\_\_

4. What fraction of the total figure is shaded?



- A.  $\frac{1}{4}$       B.  $\frac{3}{8}$       C.  $\frac{3}{4}$       D. 1      E.  $\frac{1}{2}$

Answer: \_\_\_\_\_

5. Six students, A, B, C, D, E and F, are participating in a table tennis tournament.

Each of them has to play one match against each of the others. So far, A has played 5 games, B has played 4 games, C has played 3 games, D has played 2 games and E has played 1 game. How many games has F played?

- A. 1      B. 2      C. 3      D. 4      E. 5

Answer: \_\_\_\_\_

6. There is a magical worm that doubles in length every hour and can grow to 20 cm in 1 day. How many hours does it take for a worm to grow to 5 cm?

- A. 19      B. 20      C. 21      D. 22      E. 23

Answer: \_\_\_\_\_

7. There is a sequence of numbers: 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18, 19, 21, ..., 51. How many numbers are there?

- A. 51      B. 41      C. 31      D. 18      E. 47

Answer: \_\_\_\_\_

8. It takes 24 minutes to saw a piece of wood into 4 sections, how long would it take to saw it into 5 sections at the same speed?

- A. 30      B. 32      C. 36      D. 40      E. 44

Answer: \_\_\_\_\_

9. This year Dad is 5 times as old as Alex and 3 years ago the sum of their ages was 30 years. How old is Alex this year?

- A. 6      B. 3      C. 30      D. 27      E. 36

Answer: \_\_\_\_\_

10. The old monkey gives peaches to the little monkeys. If each little monkey gets 10 peaches, there are 9 more peaches, and if each little monkey gets 11 peaches, there are 2 more peaches, so how many little monkeys are there in total?

- A. 7      B. 8      C. 9      D. 10      E. 11

Answer: \_\_\_\_\_

11. 2 machines make 80 tons of paper in 20 minutes, how many tons of paper does 1 machine make in 1 hour?

- A. 2      B. 240      C. 40      D. 120      E. 480

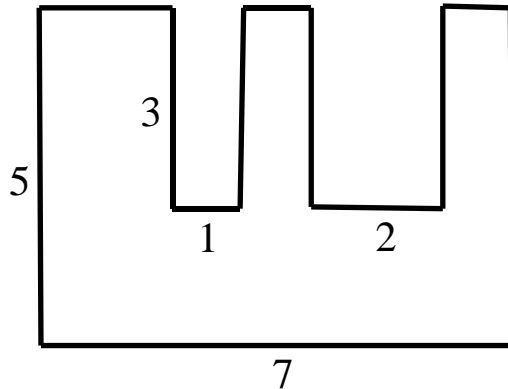
Answer: \_\_\_\_\_

12. A 100-metre-long string is used to enclose a square with a side of 10 metres and the remainder to form a rectangle that its length is 20 metres, what is the width (in metre) of this rectangle?

- A. 70      B. 50      C. 40      D. 10      E. 20

Answer: \_\_\_\_\_

13. What is the area of the figure below?



- A. 36      B. 26      C. 35      D. 24      E. 25

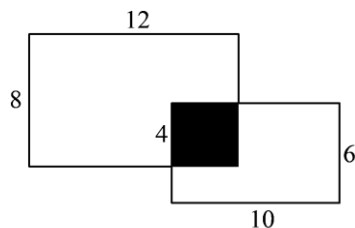
Answer: \_\_\_\_\_

14. How many ways are there to divide the 9 balls into three piles?

- A. 7      B. 8      C. 9      D. 10      E. 11

Answer: \_\_\_\_\_

15. A rectangle has a length of 12 cm and a width of 8 cm, another rectangle has a length of 10 cm and a width of 6 cm, and the part between them that overlaps is a square with a side of 4 cm, find the area (in  $\text{cm}^2$ ) of this combined figure.



- A. 180      B. 156      C. 140      D. 16      E. 80

Answer: \_\_\_\_\_

16. There are 100 travelers, 10 of whom speak neither English nor Russian, 75 of whom speak English and 83 of whom speak Russian. How many people speak both English and Russian?

- A. 7      B. 58      C. 68      D. 15      E. 8

Answer: \_\_\_\_\_

17. Alex added two three-digit numbers. The tens digit of one of the numbers is 3 and it is mistakenly written as 1. The hundreds digit of another number is 5 and it is mistakenly written as 8. The sum obtained is 2382. Find the correct sum.

- A. 2662      B. 2381      C. 2102      D. 2062      E. 2832

Answer: \_\_\_\_\_

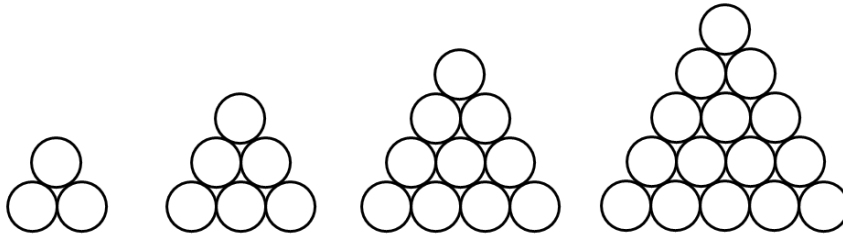
18. In the equation below, different letters represent different numbers and the same letters represent the same number. Find the value of G.

$$\begin{array}{r}
 \text{ADBHEG} \\
 G \overline{) 999999} \\
 \underline{G} \\
 B9 \\
 \underline{BH} \\
 A9 \\
 \underline{AD} \\
 E9 \\
 \underline{EF} \\
 C9 \\
 \underline{CE} \\
 D9 \\
 \underline{DI} \\
 0
 \end{array}$$

- A. 1      B. 3      C. 5      D. 7      E. 9

Answer: \_\_\_\_\_

19. How many circles are there in the tenth diagram?



- A. 30      B. 55      C. 66      D. 78      E. 90

Answer: \_\_\_\_\_

20. The weight of 1 cow is equal to the weight of 1 rabbit and 1 pig, the weight of 1 pig is equal to the weight of 1 rabbit and 2 ducks, the weight of 1 rabbit is equal to the weight of 3 ducks. How many ducks weigh the same as 1 cow?

- A. 8      B. 6      C. 5      D. 4      E. 7

Answer: \_\_\_\_\_

21. The weight of cabbage is 3 times that of radish. After selling 1800 kg of cabbage and 300 kg of radish, the remaining two vegetables are of equal weight. How many kg of cabbage were there originally?

- A. 2250      B. 2100      C. 750      D. 600      E. 500

Answer: \_\_\_\_\_

22. A total of 91 trees are planted on one side of a road, including the ends, and the distance between each two trees is 5 m. What is the length of the road in metres?

- A. 460      B. 455      C. 450      D. 445      E. 440

Answer: \_\_\_\_\_

23. A small electric light was hung in the schoolyard during the festival. Between each of the two white lights there is one red, one yellow and one green coloured light. This means that from the first white light onwards, each white light is followed by three coloured lights. So what colour is the 73rd light?

- A. white      B. red      C. yellow      D. green      E. black

Answer: \_\_\_\_\_

24.  $\frac{3}{7}$  of the audience at a concert is adults, and the rest are children. There are twice as many girls as boys.  $\frac{3}{4}$  of the boys does not wear glasses. What fraction of the audience are boys with glasses?

- A.  $\frac{1}{28}$       B.  $\frac{3}{28}$       C.  $\frac{1}{21}$       D.  $\frac{1}{7}$       E.  $\frac{3}{14}$

Answer: \_\_\_\_\_

25. There are 100 participants in the competition. Every two people play a match, the loser is eliminated and the winner continues. In how many matches will the winner be decided?

- A. 50      B. 97      C. 98      D. 99      E. 100

Answer: \_\_\_\_\_

26. Only one of Alex, Ben and Cindy could swim. Alex said, "I can swim." Ben said, "I don't know how to swim." Cindy said, "Alex can't swim." Only one of them is telling the truth. Who can swim?

Answer: \_\_\_\_\_

27. In a car park, there are 30 vehicles, of which cars have 4 wheels and three-wheeled motorbikes have 3 wheels. If there are 100 wheels, how many three-wheeled motorbikes are there?

Answer: \_\_\_\_\_

28. Some students travel in boats. If each boat carries 3 students, there will be 7 more students. If each boat carries 4 more students, there will be 3 boats empty, how many students are there in total?

Answer: \_\_\_\_\_

29. A typist types 1,800 words in 15 minutes. At this rate, how many words can be typed in an hour?

Answer: \_\_\_\_\_

30. Cut a square with a side length of 3 cm from a rectangle whose length is 8 cm and width is 4 cm, how many possibilities are there for the perimeter of the remaining figure.

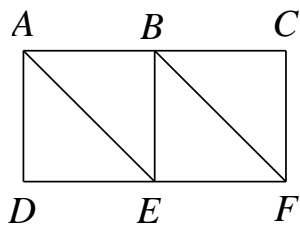
Answer: \_\_\_\_\_

31. A rectangular paper, 20 cm long and 16 cm wide, is cut into the largest square (the blank part), so how many square centimetres is the area of the part to be cut out (the shaded part)?



Answer: \_\_\_\_\_

32. The diagram below shows 6 points and 9 lines. A beetle starts from point A. The same point or line can only be passed once. How many different ways can this beetle walk to F?



Answer: \_\_\_\_\_



33. There is a two-digit number A with the ones digit of 4 and the tens digit of m. After adding a zero to the middle of m and 4, you get a three-digit number B. The difference between B and 6 is 7 times larger than A. Find the value of m.

Answer: \_\_\_\_\_

34. Is the result of  $1 \times 3 \times 5 \times 7 \times 9 \times 11 \times 13 \times 15 \times 17$  an odd or an even number?

Answer: \_\_\_\_\_

35. Lady Catherine made 100 pies, she gave  $\frac{1}{10}$  of them to her neighbour, and her family ate 30 of them. How many pies were left?

Answer: \_\_\_\_\_

36. In the equation below, different letters represent different numbers and the same letters represent the same number. What is sum of A, B and C?

$$\begin{array}{r}
 C \\
 B \ C \\
 + \ A \ B \ C \\
 \hline
 C \ B \ C
 \end{array}$$

Answer: \_\_\_\_\_

37. There is a sequence of numbers: 2, 2, 4, 6, 10, A, 26. Find the value of A.

Answer: \_\_\_\_\_

38. Assume that  $\frac{1}{2} \oplus \frac{2}{5} = \frac{3}{10}$ ,  $\frac{4}{5} \oplus \frac{7}{9} = \frac{11}{45}$ ,  $\frac{7}{8} \oplus \frac{6}{5} = \frac{13}{40}$ . Find the value of  $\frac{3}{11} \oplus \frac{4}{5}$ .

Answer: \_\_\_\_\_

39. Calculate:  $1 - 3 - 5 + 7 + 9 - 11 - 13 + 15 + \cdots + 1993 - 1995 - 1997 + 1999$ .

Answer: \_\_\_\_\_

40. Alex bought 4 pounds of beef and 3 pounds of lamb for s\$230. Ben bought back 6 pounds of beef and 3 pounds of lamb for s\$300. How much (in s\$) is a pound of lamb?

Answer: \_\_\_\_\_

41. Arrange the odd numbers greater than 100 in a row from smallest to largest. What is the 21st number in the row?

Answer: \_\_\_\_\_

42. Barrel A has 42 kg of oil and barrel B has 18 kg of oil. After pouring how many kg of oil from barrel B into barrel A, barrel A has 5 times as much oil as barrel B?

Answer: \_\_\_\_\_

43. Grandpa is 78 years old and his three grandchildren are 27, 23 and 16 years old respectively. In how many years will the grandfather's age be equal to the sum of the three grandchildren's ages?

Answer: \_\_\_\_\_

44. How many ways are there to choose three different numbers from 1, 2, 3, 4, 5 and 6 so that their sum is an odd number?

Answer: \_\_\_\_\_

45. A certain number is first added by 5, then multiplied by 5, then divided by 3 and finally subtracted by 3. The result is 12. What is the original number?

Answer: \_\_\_\_\_

46. In a maths competition, there were 10 questions. For each question, 3 points are awarded for getting it right, and 1 point is deducted for any blanks or mistakes. Alex scored 18 points, how many questions did he get right?

Answer: \_\_\_\_\_

47. Calculate:  $(1 + 3 + 5 + \cdots + 2009) - (2 + 4 + 6 + \cdots + 2008)$ .

Answer: \_\_\_\_\_

48. Alex, Ben and Cindy teach language, mathematics and English respectively and it is known that

- (1) Cindy is older than the English teacher
  - (2) Alex is a different age from the maths teacher
  - (3) The maths teacher is younger than Ben.
- Who is the English teacher?

Answer: \_\_\_\_\_

49. Alex and Ben walk along the circular playground from the same place at the same time in the opposite direction. It is known that the circumference of the playground is 400 metres. If Alex is 4 times as fast as Ben, when they meet for the first time, how long (in metre) does Alex walk?

Answer: \_\_\_\_\_

50. A circular playground runway has a circumference of 900 metres, and two students start at the same time from the same place, running in opposite directions. Given that Alex runs 55 metres per minute, and Ben runs 35 metres per minute. How long will it take the two to meet each other for the first time?

Answer: \_\_\_\_\_