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2021 GEP Selection Round Math Mock Paper

Suitable for

• **Primary 3 Students** •

$$(a+b)^2 = a^2$$

$$y(x^2)$$

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GEP Mock Paper 1

Pre-face:

Introduction: There are 48 questions in total, the questions are placed in a random order.


We want the students to train the ability on managing the time when doing the exam paper. For example, when they find a question really difficult, they will skip this question and move on to the next, in order to finish every question they are able to do.





Duration: 1hr 50min

Multi-choice questions:

24 questions. Each question worth 2 points.

1 Which of the following should be filled into "?" _____ .



A.  B.  C.  D. 

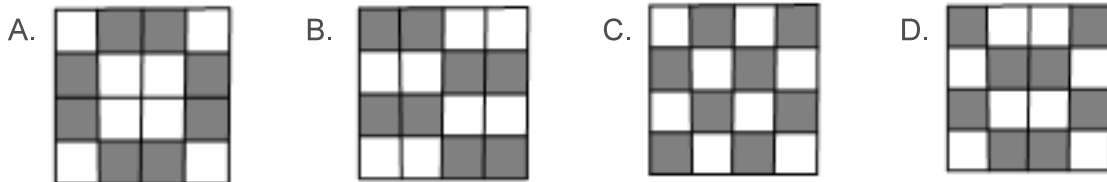
2 Which of the following should be filled into "?"

<table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">◊</td> <td style="width: 50%; height: 50%; text-align: center;">■</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">●</td> <td style="width: 50%; height: 50%; text-align: center;">△</td> </tr> </table>	◊	■	●	△	<table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">○</td> <td style="width: 50%; height: 50%; text-align: center;">◆</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">▶</td> <td style="width: 50%; height: 50%; text-align: center;">□</td> </tr> </table>	○	◆	▶	□	<table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">▽</td> <td style="width: 50%; height: 50%; text-align: center;">●</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">■</td> <td style="width: 50%; height: 50%; text-align: center;">◊</td> </tr> </table>	▽	●	■	◊	<table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td colspan="2" style="text-align: center; font-size: 2em;">?</td> </tr> </table>	?			
◊	■																		
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<p>A. <table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">□</td> <td style="width: 50%; height: 50%; text-align: center;">▶</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">◆</td> <td style="width: 50%; height: 50%; text-align: center;">○</td> </tr> </table></p>	□	▶	◆	○	<p>B. <table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">●</td> <td style="width: 50%; height: 50%; text-align: center;">△</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">◊</td> <td style="width: 50%; height: 50%; text-align: center;">■</td> </tr> </table></p>	●	△	◊	■	<p>C. <table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">■</td> <td style="width: 50%; height: 50%; text-align: center;">◁</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">◊</td> <td style="width: 50%; height: 50%; text-align: center;">●</td> </tr> </table></p>	■	◁	◊	●	<p>D. <table border="1" style="border-collapse: collapse; width: 100%; height: 100%;"> <tr> <td style="width: 50%; height: 50%; text-align: center;">□</td> <td style="width: 50%; height: 50%; text-align: center;">◀</td> </tr> <tr> <td style="width: 50%; height: 50%; text-align: center;">◆</td> <td style="width: 50%; height: 50%; text-align: center;">○</td> </tr> </table></p>	□	◀	◆	○
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●	△																		
◊	■																		
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□	◀																		
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Barry listened to the radio for 3 hours and 36 minutes. How many minutes did Barry listen to the radio for? Round your answer to the nearest 10 minutes.

- A. 210 B. 220 C. 330 D. 340

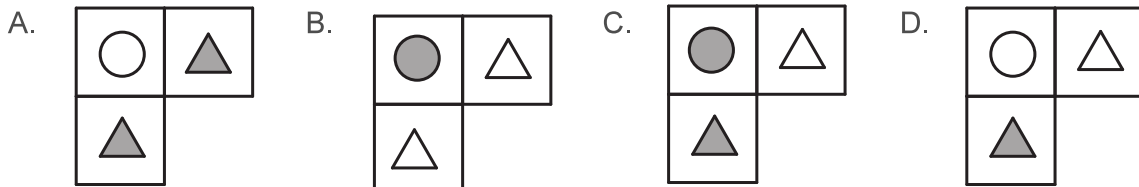
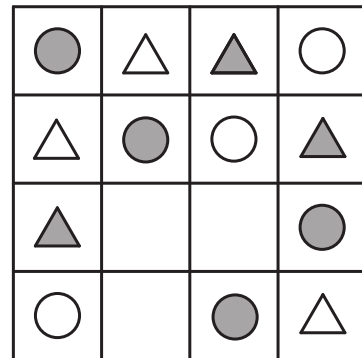
4 Which of the following has exactly 2 lines of symmetry? _____



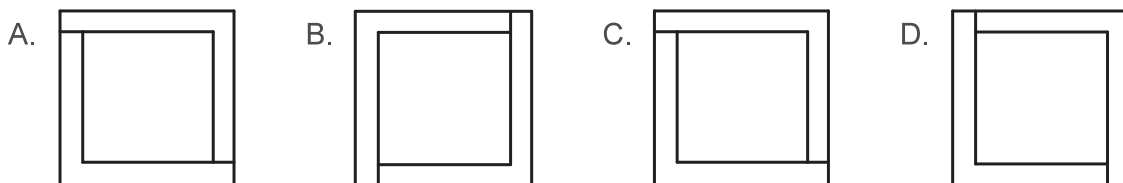
5 For every pen that Steve bought, he also bought 3 pencils and 5 highlighters. If he bought 6 pens, how many pencils and highlighters did he buy all together? ()

- A. 11 B. 14 C. 15 D. 48

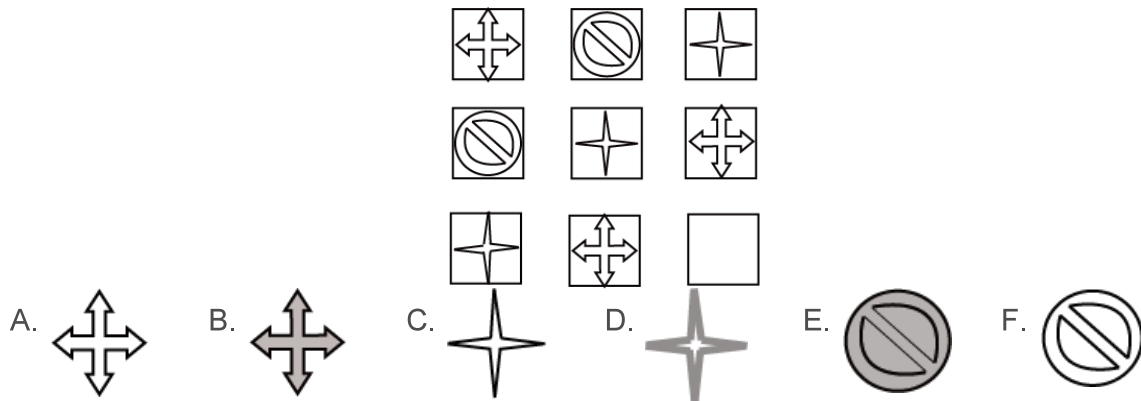
6 Which of the following should be filled into the blank space?



7 Which of the four diagrams below is different from the others? ()



- 8 Study the following diagram and discern the pattern. Fill in the correct answer in the empty box.



- 9 Mr. Bogsworth once left a will which read:

To Bob, I leave twice as much as I leave to Betty.

To Brian, I leave twice as much as I leave to Bob.

To Bill, I leave twice as much as I leave to Brian.

If his estate was valued at \$45000, how much money did Betty receive?

- 10 ■◇◆●●●■◇◆●●●■◇◆●●●....., according to the pattern, the 40th figure will be ().
- A. ■ B. ◇ C. ● D. I don't know

- 11 "OPQRST" repeatedly shown as "OPQRSTOPQRST...", the 2015th alphabet should be ()?
- A. S B. Q C. O D. T

- 12 How many four-digit whole numbers have four different even digits and a ones digit greater than its thousands digit?
- A. 36 B. 54 C. 60 D. 90

It took me 90 minutes to cycle 45km to the beach. Later, I got a ride from the beach to the park at twice my cycling speed. If the ride to the park took 15 minutes, what distance did I travel from the beach to the park? () .

- A. 15km B. 30km C. 45km D. 135km

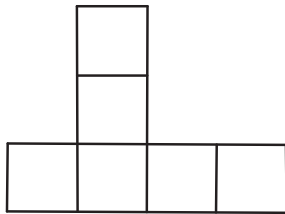
14 Eighteen years from now, my age will be 4 more than twice my current age .

My age now is () .

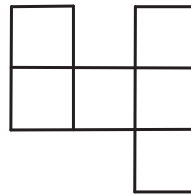
- A. 12 B. 14 C. 16 D. 18

15 Which of the following is the stretch-out view of a cube? _____

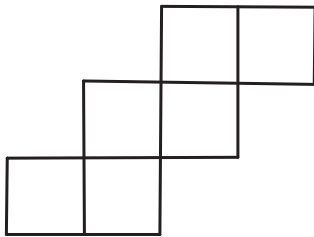
A.



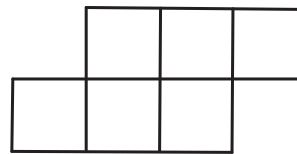
B.



C.



D.



16 The weight of a piggy equals that of 6 chickens; the weight of 3 chickens equals that of 4 ducks; the weight of 2 ducks equals that of 6 fishes. The weight of 2 piggies equals to that of () fishes.

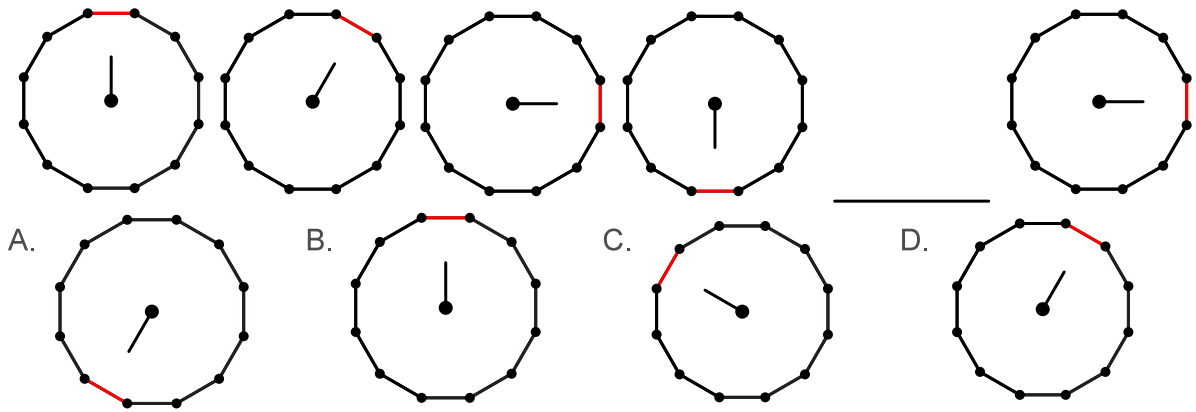
- A. 48 B. 36 C. 24 D. 18

17 Consider the number series: 1 , 2 , 2 , 3 , 3 , 3 , 4 , 4 , 4 , 4 ,

The 35th number in this series is () .

- A. 6 B. 7 C. 8

18 Filling in the blank with the suitable figure



19 How many minutes are there in two full days?

- A. 1440 B. 1660 C. 2000 D. 2880

20 The average of all positive even integers from 2 to 2018 is () .

- A. 1000 B. 1009 C. 1010 D. 1014

21 This year, Mdm Jo is 37 years old and her daughter is 7 years old. () years later, Mdm Jo is 4 times as old as her daughter.

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

22 If $2 \oplus 3 = 2 + 22 + 222$ and $3 \oplus 2 = 3 + 33$, then $4 \oplus 5$ is () .

- A. 5555 B. 6170 C. 44444 D. 49380

23 \square and \triangle represent () .

$$\square + \square + \square + \triangle + \triangle + \triangle = 27$$

$$\triangle + \triangle + \square = 12$$

- A. 3 and 4 B. 3 and 6 C. 4 and 6 D. 6 and 3

24 A man had five pieces of chain, each made up of three links, figure below. He wanted to join the five pieces together to make a big chain of fifteen links and went to a blacksmith to see how much it would cost. "Well," said the blacksmith, "I will charge you 50 cents for

any cutting required on a chain and 1.00 dollar for welding a link. Any bending that is required is free." Given those prices, what is the smallest amount of money for which the job could be done? ()

Note: In a chain, each link is connected to one or two other links.



A. 4.50

B. 5.00

C. 5.50

D. 6.00

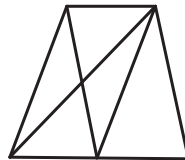
Open-ended Questions

24 open-ended questions.

Each question worth 3 marks.

25 Fill in the blanks : 1, 5, 10, 16, 20, 25, 31, 35, _____, _____, 50,

26 How many triangles are there in the figure below?



27 Calculate: $98 + 198 + 1998 + 19998 + 199998 =$ _____ .

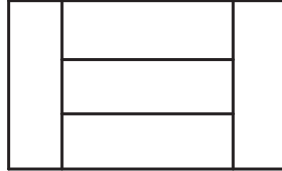
28 Last year, Mr Tan was 35 years old. Next year, Ming will be 9 years old. (_____) years later from this year, Mr Tan is 3 times as old as Ming.

29 Calculate $157 - 234 + 365 - 456 + 968 =$ _____ .

30 Follow the pattern. What is the 10th number, counting from left to right?

1, 3, 5, 7, 16, 31, 59, 113, 219, _____, 813

- 31 The big rectangle is made of 5 identical small rectangles. If the perimeter of a small rectangle is 40cm, the perimeter of the big rectangle is _____ cm.



- 32 Fill in the blank :

$\frac{3}{4}$, $\frac{8}{9}$, $\frac{13}{16}$, $\frac{18}{25}$, $\frac{23}{36}$, $\frac{28}{49}$, _____ .

- 33 There is a big square-shaped cake. The length of each side is 30cm. There are strawberries placed along the sides and corners 6cm apart from each other. How many strawberries are there on the cake?

- 34 Fill in plus sign(s) or minus sign(s) to make the equation correct .

5 _____ 4 _____ 2 _____ 1 = 2

- 35 There are 40 students in 2A. 25 of them know how to play football, 25 of them know how to swim and five of them know neither of the sports. How many students know both of the sports?

- 36 From numbers 1 to 30, the number "2" appears _____ times .

- 37 Three years ago, Sam was 5 years older than Peter. The sum of their ages this year is 23. Sam is () years old and Peter is () years old.

38 $\triangle + \bigcirc = 11$, $\bigcirc + \square = 12$, $\square + \triangle = 17$.


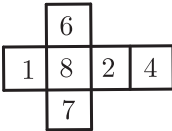
$\square = \underline{\hspace{2cm}}$, $\triangle = \underline{\hspace{2cm}}$, $\bigcirc = \underline{\hspace{2cm}}$.

39 Adrian was standing in a queue of 22 people. He saw that there were 13 people in front of him. There were () people behind him.

40 5 cats can catch 5 mice in 5 days. () cats are needed to catch 20 mice in 20 days.

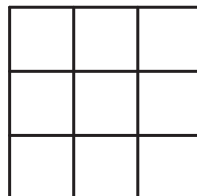
41 Calculate .

$2 + 4 + 6 + \dots + 46 + 48 + 50 + 48 + 46 + \dots + 18 + 16 + 14$. $\underline{\hspace{2cm}}$

42 Make a  with  . The number opposite the number "2" is () , and the number opposite the number "4" is () .

43 5 years ago, Mike's age was 5 times of his son's age. 6 years later , *the* sum of their ages is 64. Mike is () years old and his son is () years old now.

44 How many squares are there in the figure shown?



45 Arthur is reading a story book. He reads 7 pages on the first day, then 4 times the number of pages on the second day. Which page does he continue reading from on the third day?

46 Using the four digits 2, 0, 1 and 7,

- (1) How many 3-digit numbers can be formed (without repeating digits)?
- (2) What is the largest possible 3-digit number that can be formed?
- (3) What is the smallest possible 3-digit number that can be formed?

47 The age of a mother 14 years ago is the same as the age of her daughter 6 years later.
The sum of the age of the mother 5 years later and the age of the daughter 2 years ago is 43. The daughter is () years old and the mother is () years old this year.

48 *A*, *B*, *C* and *D* are classmates. In the class, one is the best singer, one has the best academic results, one loves sports and one is a class monitor. It is known that:

- (1) *B* does not score well academically;
- (2) *A* sings the best;
- (3) *B* is younger than the one who loves sports;
- (4) *C* is not the youngest, and is older than the best performing classmate.

Therefore, _____ is the class monitor, _____ scored has best academic results and _____ loves sports.



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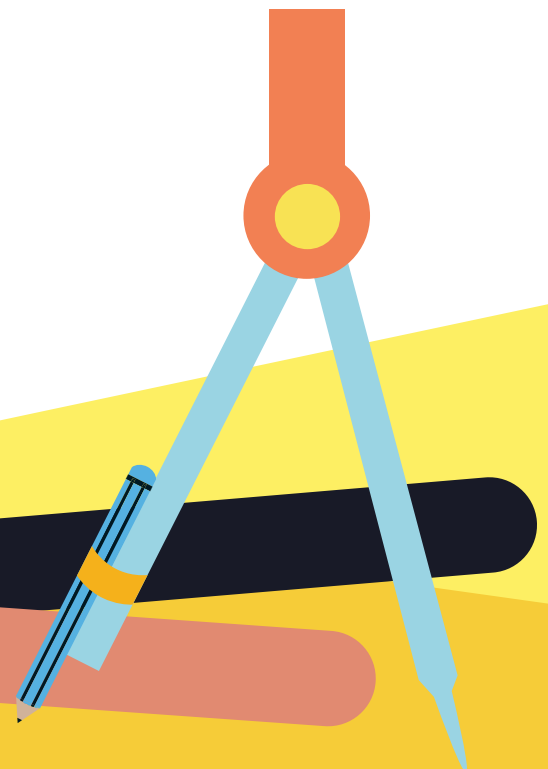
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2021 GEP Selection Round Math Mock Paper Answer Key

$y(x^2)$



$$(a+b)^2 = a^2$$



GEP Mock Paper 1

Multi-choice questions:

1 D 2 D 3 B 4 C 5 D 6 D 7 D 8 F 9 C 10 C 11 A

12 A 13 A 14 B 15 C 16 A 17 C 18 C 19 D 20 C 21 C 22 D

23 D 24 A

Open-ended Questions

25 1:40

2:46

26 10

27 222290

28 6

29 800

30 422

31 80

32 $\frac{33}{64}$

33 20

34 1:–
2: +
3:–

35 15

36 13

37 1:14
2:9

38 1:9
2:8
3:3

39 8

40 5

41 1208 .

42 1:1
2:8

43 1:40

2:12

44 14

45 36

46 1:18

2:721

3:102

47 1:10

2:30

48 1:B

2:D

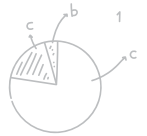
3:C



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