

Level E - Form 1 - Applied Mathematics: Patterns, Functions, Algebra

Sample Question

What number goes in the box to make this number sentence true?

$$15 \div \square = 5$$

- A 1
- B 2
- C 3
- D 4

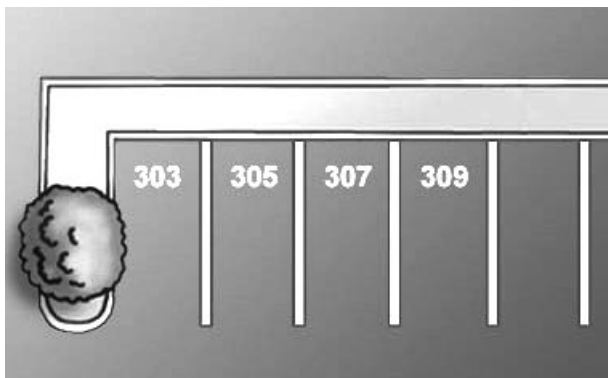
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1. What numbers are missing from the number sequence?

36, 32, _____, 24, 20, _____

- A 28 and 18
- B 28 and 16
- C 30 and 16
- D 31 and 19

2. The parking spaces in this pattern are being numbered. What number will the next blank space have?



- F 308
- G 310
- H 311
- J 313

3. This sign shows the prices of bus tickets. What is the cost of an 8-ride bus ticket?

BUS TICKETS	
1 ride	\$1.10
Round trip	\$2.20
5 rides	\$5.50

- A \$4.40
- B \$6.60
- C \$8.00
- D \$8.80

4. What is the next number in this sequence?

13, 18, 23, 28, _____

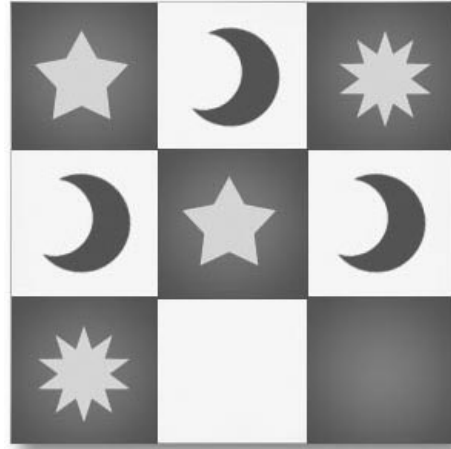
- F 33
- G 32
- H 29
- J 34

5. What number completes the pattern?

7, 8, 10, 11, 13, _____

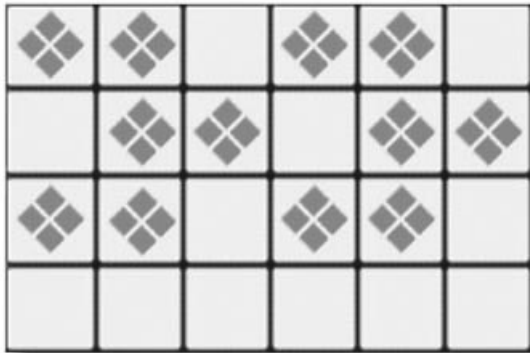
- A 15
- B 16
- C 14
- D 10

6. Luisa's diary has a checked cover. She is stamping a pattern on it. So far, she has done this much. What will the next stamp be?



- F a star
- G a moon
- H a sun
- J nothing

This diagram shows a tile floor pattern. Study the diagram. Then do Numbers 7 through 8.



7. The bottom row that is blank should continue the same pattern. What will it look like?

- A
- B
- C
- D

8. Suppose the floor must be made one column wider along the right. It must keep the same pattern. What would the new column of tiles look like?



9. Which are the next two figures in this pattern?



- A
- B
- C
- D

10. Which figure comes next in this pattern?



- F
- G
- H
- J

11. What number goes into the box to make this number sentence true?

$$10 - \square = 6$$

- A 3
- B 6
- C 5
- D 4

12. What number goes into the box to make this number sentence true?

$$4 + \square = 12$$

- F 9
- G 8
- H 7
- J 6

13. What sign completes this number sentence?

$$16 \square 4 = 4$$

- A +
- B -
- C +
- D ÷

14. The table shows In numbers that have been changed by a certain rule to get Out numbers. Which is the rule that changes the In numbers to the Out numbers?

In	3	5	9	15
Out	8	10	14	20

- F Add 6.
- G Add 4.
- H Add 5.
- J Add 2.

15. The table shows In numbers that have been changed by a certain rule to get Out numbers. Which is the rule that changes the In numbers to the Out numbers?

In	17	14	11	6
Out	13	10	7	2

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

16. A driveway is 35 feet long and 22 feet wide. In which number sentence is t the total distance around the driveway?

- F $35 + 22 = t$
- G $35 + 22 + 35 + 22 = t$
- H $t - 35 = 22$
- J $35 + 22 = t + 35$

This diagram shows the plan for one floor of a new parking garage. Study the diagram. Then do Numbers 17 through 19.



17. Each floor of the parking garage will have four sections. In which sentence does n represent the number of sections for handicapped parking?
- A $n - 3 = 4$
 B $3 + 1 = n$
 C $n + 3 = 4$
 D $1 + n = 4$
18. Each floor of the parking garage has four sections. There will be 30 parking spaces in each section. In which sentence does n represent the total number of parking spaces on one floor of the parking garage?
- F $30 + 4 = n$
 G $4 \times 30 = n$
 H $4 \times n = 30$
 J $n + 4 = 30$

19. To use one of these parking spaces for a month, you must pay rent plus a deposit for an electronic pass key. In the following number sentence, d is the deposit:
 $\$50.00 + d = \72.00
 How much is the deposit?
- A \$72.00
 B \$50.00
 C \$32.00
 D \$22.00

20. Kai buys a book for \$7.95. In which number sentence is c the amount of change he will receive from a \$10.00 bill?
- F $\$10.00 + c = \7.95
 G $\$7.95 - c = \10.00
 H $\$10.00 - \$7.95 = c$
 J $\$10.00 + \$7.95 = c$