Worksheet on pattern and algebra

Question 1(ANSWER ALL QUESTIONS)

1. The coefficient of xy in $3x^2zy + 7xyz - 2z^2x$ is

a) 3z
b) -2
c) 7yz
d) 7z

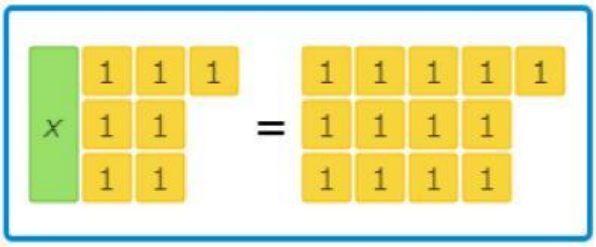
2. Find the value of the expressions: $a^2 + b^2 + 3ab$, where a = 1 and b = –2

a) -1
b) 1
c) 2
d) -2

3. The length of a side of square is given as $2x + 3$. Which expression represents the perimeter of the square?

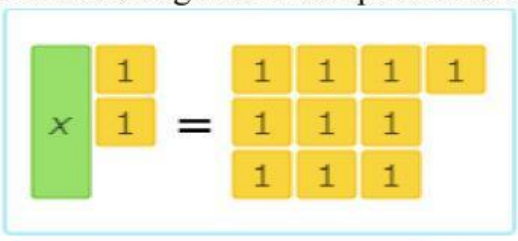
a) $2x + 16$
b) $6x + 9$
c) $8x + 3$
d) $8x + 12$

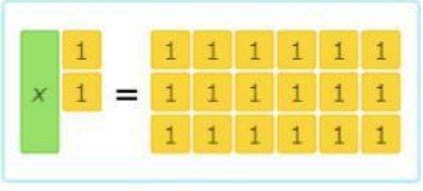
4. The following algebraic tiles represents

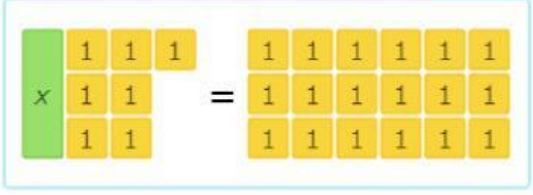


a) $x + 6 = 13$
b) $x - 6 = 13$
c) $x + 7 = 13$
d) $x - 7 = 13$

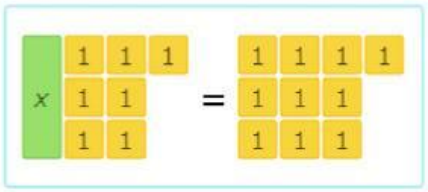
5. Which set of algebra tiles represents the equation $x + 7 = 10$?

a)


b)


c)


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d) 

6. Solve for s, 2 = s – 1
   a) 1
   b) 2
   c) 3
   d) 4

7. Solve for q, 3q = 6
   a) 1
   b) 2
   c) 3
   d) 4

8. What is the inverse operation of addition?
   a) Multiplication
   b) Division
   c) Subtraction
   d) None of the above

9. An equation is
   a) A statement expressing a relationship between two variables
   b) A mathematical expression containing an in-equality sign
   c) A mathematical statement that shows two expressions are equal
   d) A function that maps inputs to outputs

10. Which of the following represents a real-life situation that can be modelled using a linear equation?
    a) Calculating the area of a rectangle
    b) Estimating the population growth of a city over time
    c) Determining the total cost of groceries at a supermarket
    d) Predicting the trajectory of a rocket launch

11. The purpose of creating a table of values is
    a) To organize data in alphabetical order
    b) To represent mathematical relationships between variables
    c) To calculate the mean, median, and mode of a dataset
    d) To determine the area and perimeter of geometric shapes

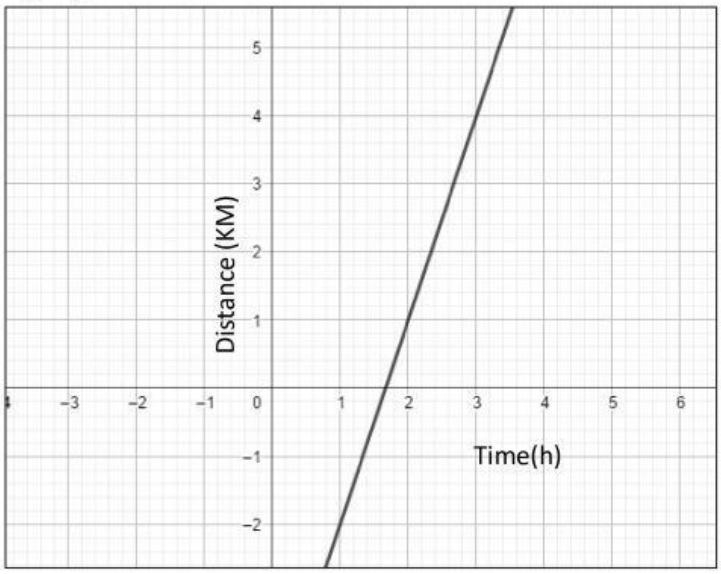
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12. The pattern rule from the table is

Figure No	No, of shapes
1	2
2	4
3	6
4	8
5	10

a) $2x$
b) $-2x$
c) $2x + 1$
d) $2x - 1$

13. This graph shows the distance driven over different numbers of hours.



From the graph, predict how long the car has travelled in 3 hours?

a) 1 hour
b) 2 hours
c) 3 hours
d) 4 hours

14. The value of x in $3x + 5 = 2$

a) -1
b) 1
c) -2
d) 2

15. The result of subtracting 5 from two times an unknown number is 13. Determine the value of the number.

a) 16
b) 17
c) 18
d) 19

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Question 2 (Answer all the questions)

Formulate an equation based on the provided word problem

I. The difference of 3 and a number squared

II. 5 less than twice a number squared

III. Five minus twice the square of a number

IV. Four minus a number multiplied by 2

V. Seven times the sum of a number and 1

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