01
Foundation

Algebraic Expressions

🅑 FUTURE SCHOOL

Read and write algebraic expressions in which letters stand for numbers. Identify parts of an expression such as: constant, variable, terms, coefficients, like terms, unlike terms,sum, product in the context of an algebraic expression. Compare and contrast variables and constants, like and unlike terms.
CCSS.MATH.CONTENT.6.EE.A.2 , 6.EE.A.2.B | US_EN_04_MAT_C19_WS_m1

A lot of children visit the community playground. So, you think of adding some new fun rides for them.

1 In the playground, 8 new rides are added to the existing 7 rides. If 6 rides out of the total are left unused on a day, find the numerical statement to calculate the number of occupied rides. Write your answer in the boxes given below.
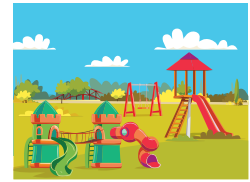
Number of occupied rides = (7 ☐ 8) ☐ 6

2 The given expression shows the total number of seats in a new merry-go-round. "x" represents the number of yellow seats and "y" represents the number of white seats. Check the variables and match them with their coefficients.

Total number of seats in a new merry-go-round = 2x + 3y + 5

x   y   5

Variables ☐ ☐ ☐

Coefficient of x ●   ● 3

Coefficient of y ●   ● 2

3 To make a swing, "p" ft of rope, "r" ft of metal poles, and "pr" ft of wooden plank are needed. The total amount of material required to make 9 swings is given by 2p + 2r + 2pr + 7p + 7r + 7pr. Match the like terms given in this expression.

2p ●   ● 7pr

2r ●   ● 7p

2pr ●   ● 7r

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4 The amount of cement needed to make a new ride is given as: 25 less than 7 times the amount of cement previously needed. The steps to convert this statement into an algebraic expression are given below. Check the incorrect step.

Step 1: Take the amount of cement previously needed = c

Step 2: Multiply 7 with c to get 7c.

Step 3: Subtract 25 from 7c to get (25 - 7c).

5 The total number of new rides in the park is represented by the expression 5x + 3y. Circle True/False for the statement given below. Check the correct reason for your answer.

Statement : The sum of 5x and 3y gives 8xy.

True   False

5x and 3y are like terms and can be added.

5x and 3y are unlike terms and cannot be added.

6 The cost of setting up 1 slide and 1 swing are $x and $y respectively. If the park has 5 new slides and 2 new swings installed, find the total cost of setting up the new slides and swings. Write your answer in the boxes given below.

Hint: Multiply the cost of each ride with the number of rides and add them to get the final cost.

Total cost of setting up all the swings and slides (in $)   =   ☐ x + ☐ y

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The children are thirsty after playing around in the park! You decide to set up some refreshment stalls for them.

1 The selling price of a soda can is $4. The cost price of the soda can is $2. If the shopkeeper sells 30 cans throughout the day, calculate his profit for that day. Write your answer in the boxes given below.

Selling price of 1 can = $ ☐   Cost price of 1 can = $ ☐

Profit on selling 1 can = $ ☐ - $ ☐

So, profit on selling 30 cans = ($ ☐ - $ ☐) × ☐☐

2 Total number of refreshments sold in a stall is given by the expression: 5h + 6d + 30. Check the correct statement(s) given below.

☐ Variables in the given expression are "h" and "d".

☐ The constant in the given expression is 30.

☐ The given expression has 3 terms.

3 The total cost of setting up a refreshment stall is represented by the expression: 3a + 6b + 60 + 18b + 15a. Write the like terms containing the variable "a" and variable "b" in the boxes given below.

Like terms containing the variable "a" : ☐☐ , ☐☐

Like terms containing the variable "b" : ☐☐ , ☐☐

Refreshment Center

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4 The cost of a vanilla ice cream (v) is 5 more than half of seven times the cost of a chocolate ice cream (i). The steps for converting this statement into an algebraic expression are given below. Check the first incorrect step.

Step 1: Multiply 7 with i to get 7i.

Step 2: Divide 7i by 2 to get $\frac{2}{7i}$.

Step 3: Add 5 with $\frac{2}{7i}$ to get $(5 + \frac{2}{7i})$.

5 A child buys "m" pizzas, for $8 each and "g" burgers for $5 each. Circle True/False for the statement given below. Check the correct reason for your answer.

Statement : 8m + 5g = 13mg   True   False

8m and 5g are like terms and can be added.

8m and 5g are unlike terms and cannot be added.

6 The cost of 1 apple juice cup and 1 lemon juice cup in a stall are $r and $a respectively. If the stall sells 6 apple juice cups and 4 lemon juice cups in an hour, calculate the total money made by the juice seller in an hour. Write your answer in the boxes given below.

Hint: Multiply the cost of each cup of juice with the number of cups of juices of the same type.

Total cost of all the cups sold in an hour (in $) = ☐ r + ☐ a

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You need to add more flowerpots to make the playground more attractive. Let's look at the details.

| Step 1 | You have to first choose the number of flowerpots you want to be placed around the playground. |

Guidelines :

● Choose a number between 30 to 50 for the number of pots (inclusive).

Number of flowerpots = ☐☐

| Step 2 | Now, let's order the flowerpots. The type of materials available and the cost of each material for the pots are given below. Follow the guidelines and find the total cost to order all the pots. |

Guidelines :

● For the plastic material, choose a number between 10 and 20 (both inclusive).
● Remaining flowerpots must be made of mud.

Name of the material	Number of pots to be ordered	Cost per pot	Total cost for the pots of each type
Plastic	☐☐	$ a	$ ☐☐☐
Mud	☐☐	$ b	$ ☐☐☐

Total cost of all the flower pots (in $) = ☐☐☐ + ☐☐☐

Number of terms in the expression for the total cost of the flower pots = ☐

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Answer the following questions about the expression for the total cost of the flowerpots.

The terms in the expression for the total cost of the flower pots are _____. Check the correct box.

◯ unlike terms   ◯ like terms

Write the coefficients of each term in the expression for the total cost of the flower pots in the boxes given.

Coefficient of "a"

Coefficient of "b"

Step 3 The cost of two varieties of flowering plants is given in the table below. Follow the guidelines and find the total price of buying the flowering plants for the pots. Write your answer in the boxes given below.

Guidelines:

● The sum of number of plants chosen should be equal to the number of pots.
● Only one flowering plant can be planted in one pot.
● Number of pots with rose plant should be at least 10.

Type of plant	Number of plants chosen	Price of each plant	Total price of plant of each type
Daffodil		$e	$
Rose		$f	$

Total price of the flowering plants for the pots = [   ] + $ [   ]

The terms in the expression for the total price of the plants are _____. Check the correct box.

◯ unlike terms   ◯ like terms

Great! The flower plots look beautiful. Everyone at the park will love them.