

Lesson 16: Write Expressions in Which Letters Stand for Numbers

Classwork

Opening Exercise

Underline the key words in each statement.

- a. The sum of twice b and 5.

$$\cancel{2(b+5)} \quad \cancel{(b+5) \times 2} \quad 2b + 5$$

- b. The quotient of c and d .

$$cd \quad c \div d \text{ or } \frac{c}{d}$$

- c. a raised to the fifth power then increased by the product of 5 and c .

$$a^5 + 5c$$

- d. The quantity of a plus b divided by 4.

$$(a+b) \div 4$$

$$\text{or } \frac{a+b}{4}$$

- e. 10 less than the product of 15 and c .

$$10 - 15c$$

- f. 5 times d increased by 8.

$$15c - 10$$

$$5d + 8$$

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Example 1

- a. The sum of twice b and 5.

- b. The quotient of c and d .

- c. a raised to the fifth power, increased by the product of 5 and c .

- d. The quantity of a plus b divided by 4.

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e. 10 less than the product of 15 and c .

f. 5 times d then increased by 8.

Example 2

Marcus has 4 more dollars than Yaseen. If y is the amount of money Yaseen has, write an expression to show how much money Marcus has.

$$y + 4$$

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Mario is missing half of his assignments. If a represents the number of assignments, write an expression to show how many assignments Mario is missing.

$$\frac{a}{2} \text{ or } a \div 2$$

Kamilah's weight has tripled since her first birthday. If w represents the amount Kamilah weighed on her first birthday, write an expression to show how much Kamilah weighs now.

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Nathan brings cupcakes to school and gives them to his five best friends who share them equally. If c represents the number of cupcakes Nathan brings to school, write an expression to show how many cupcakes each of his friends receive.

Underline the Key words

Mrs. Marcus combines her atlases and dictionaries and then divides them among 10 different tables. If a represents the number of atlases and d represents the number of dictionaries Mrs. Marcus has, write an expression to show how many books would be on each table.

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To improve in basketball, Ivan's coach told him that he needs to take four times as many free throws and four times as many jump shots every day. If f represents the number of free throws and j represents the number of jump shots Ivan shoots daily, write an expression to show how many shots he will need to take in order to improve in basketball.

Exercises

Mark the text by underlining key words, and then write an expression using variables and numbers for each statement below.

1. b decreased by c squared.
2. 24 divided by the product of 2 and a .

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3. 150 decreased by the quantity of 6 plus b .
4. The sum of twice c and 10.
5. Marlo had \$35 but then spent $\$m$.
6. Samantha saved her money and was able to quadruple the original amount, m .

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7. Veronica increased her grade, g , by 4 points, and then doubled it.
8. Adbell had m pieces of candy and ate 5 of them. Then he split the remaining candy equally among 4 friends.
9. To find out how much paint is needed, Mr. Jones must square the side length of the gate, and then subtract 15.
10. Luis brought x cans of cola to the party, Faith brought d cans of cola, and De'Shawn brought h cans of cola. How many cans of cola did they bring all together?

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Problem Set

Mark the text by underlining key words, and then write an expression using variables and numbers for each of the statements below.

1. Justin can type w words per minute. Melvin can type 4 times as many words as Justin. Write an expression that represents the rate at which Melvin can type.
2. Yohanna swam y yards yesterday. Sheylin swam 5 yards less than half the amount of yards as Yohanna. Write an expression that represents the number of yards Sheylin swam yesterday.
3. A number d decreased by 5 and then doubled.
4. Nahom and Semir combined their baseball cards, and then sold 10 of them.
5. The sum of 25 and h is divided by f cubed.

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Exit Ticket

Mark the text by underlining key words, and then write an expression using variables and numbers for each of the statements below.

1. Omayya picked x amount of apples, took a break, and then picked v more. Write the expression that models the total number of apples Omayya picked.
2. A number h is tripled and then decreased by 8.
3. Sidney brings s carrots to school and combines them with Jenan's j carrots. She then splits them equally between 8 friends.
4. 15 less than the quotient of e and d .
5. Marissa's hair was 10 inches long, and then she cut h inches.

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Classwork

Exercises

Station One	1.
	2.
	3.
Station Two	1.
	2.
	3.
Station Three	1.
	2.
	3.

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Station Four	1.
	2.
	3.
Station Five	1.
	2.
	3.
Station Six	1.
	2.
	3.

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Problem Set

Write an expression using letters and numbers for each problem below.

1. 4 less than the quantity of 8 times n .
2. 6 times the sum of y and 11.
3. The square of m reduced by 49.
4. The quotient when the quantity of 17 plus p is divided by 8.
5. Jim earned j in tips, and Steve earned s in tips. They combine their tips then split them equally.
6. Owen has c collector cards. He quadruples the number of cards he had, and then combines them with Ian, who has i collector cards.
7. Rae ran 4 times as many miles as Madison and Aaliyah combined. Madison ran m miles and Aaliyah ran a miles.
8. By using coupons, Mary Jo was able to decrease the retail price of her groceries, g , by \$125.
9. To calculate the area of a triangle, you find the product of the base and height and then divide by 2.
10. The temperature today was 10 degrees colder than twice yesterday's temperature, t .

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Exit Ticket

Write an expression using letters and numbers for each problem below.

1. d squared.
2. A number x increased by 6 and then the sum is doubled.
3. The total of h and b is split into 5 equal groups.
4. Jazmin has increased her \$45 by m dollars and then spends a third of the entire amount.
5. Bill has d more than 3 times the number of baseball cards as Frank. Frank has f baseball cards.

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