

**BELLEVILLE MIDDLE SCHOOL**  
**SUMMER PACKET**  
**INCOMING 7<sup>TH</sup> GRADE – Pre-Algebra**  
**DUE DATE – September 23, 2019**

If you need another copy of this packet, it will be posted on the BMS website.

Show work for all problems. This will be counted as a test grade.

Have a fantastic summer!!

# Algebraic Expressions

For questions 1–6, write each expression using  $x$  as the variable.

1. Six more than a number

- A  $6x$
- B  $6 + x$
- C  $6 - x$
- D Not Given

2. Forty less than a number

- A  $40 - x$
- B  $x - 40$
- C  $40 \div x$
- D  $40 > x$

3. Five more than twice a number

- A  $2x + 5$
- B  $2x - 5$
- C  $5 \cdot 2x$
- D Not Given

4. The product of a number and twelve

- A  $12x$
- B  $12 + x$
- C  $12 \div x$
- D  $x = 12$

5. The quotient of twice a number and thirteen

- A  $13 \div 2x$
- B  $13 \cdot 2x$
- C  $2x + 13$
- D  $2x \div 13$

6. The difference of a number squared and seven

- A  $7 + x^2$
- B  $x^3 - 7$
- C  $x^2 - 7$
- D Not Given

For questions 7–10, write each expression in words.

7.  $2p - 3$

- A two  $p$  more than 3
- B the difference of twice a number  $p$  and 3
- C twice a number  $p$  decreased by 3
- D Not Given

8.  $8(y - 2)$

- A 8 times the difference of  $y$  and 2
- B the product of 8 and a number  $y$  decreased by 2
- C  $y$  times 8 minus 2
- D Not Given

9.  $\frac{m}{2}$

- A the sum of a number  $m$  and 2
- B the product of a number  $m$  and 2
- C the quotient of a number  $m$  and 2
- D Not Given

10.  $\frac{3a}{4}$

- A the product of a number  $a$  and 3
- B the quotient of a number  $a$  and 4
- C 3 and 4 divided by  $a$
- D Not Given

1.  $-6 + 10 = ?$

- (A) 16
- (B) -16
- (C) 4
- (D) -4

2.  $(-3) - (-12) = ?$

- (A) 9
- (B) -9
- (C) 15
- (D) -15

3.  $4 \times (-8) = ?$

- (A) 4
- (B) 12
- (C) -12
- (D) -32

4.  $(-60) \div (-4) = ?$

- (A) 15
- (B) -15
- (C) 64
- (D) -64

5.  $(-2) \times (-3) \times (-5) = ?$

- (A) 30
- (B) -30
- (C) 11
- (D) -11

6.  $(-5) \times (7) \times (-2) = ?$

- (A) 14
- (B) -4
- (C) 70
- (D) -70

7.  $44 - (-12) = ?$

- (A) 56
- (B) -56
- (C) 32
- (D) -32

8.  $(-3) \times (5) \times (-4) = ?$

- (A) -60
- (B) 7
- (C) 19
- (D) 60

9.  $67 - 94 = ?$

- (A) 161
- (B) 27
- (C) -27
- (D) -161

10.  $-78 - (-78) = ?$

- (A) 0
- (B) 156
- (C) -156
- (D) -166

#### 4 EXAMPLE Solving Problems Involving Area

The area of a rectangular flower bed is  $6\frac{1}{2}$  square feet. The width of the flower bed is  $\frac{3}{4}$  feet. What is the length? (*Hint: area = length  $\times$  width*)

To find the length of the flower bed, divide the area by the width.

$$6\frac{1}{2} \div \frac{3}{4} = \frac{13}{2} \div \frac{3}{4}$$

$$= \frac{13}{2} \times \frac{4}{3} = \frac{52}{6} = 8\frac{2}{3}$$

$A = 6\frac{1}{2} \text{ ft}^2$ $l = ?$	$w = \frac{3}{4} \text{ ft}$
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The length of the flower bed is  $8\frac{2}{3}$  feet.

## PRACTICE

Find the reciprocal of each fraction or mixed number.

1.  $\frac{2}{5}$  \_\_\_\_\_

2.  $\frac{1}{9}$  \_\_\_\_\_

3.  $\frac{5}{3}$  \_\_\_\_\_

4.  $\frac{4}{11}$  \_\_\_\_\_

5.  $4\frac{1}{5}$  \_\_\_\_\_

6.  $3\frac{1}{8}$  \_\_\_\_\_

Divide.

7.  $\frac{4}{3} \div \frac{5}{3} =$  \_\_\_\_\_

8.  $\frac{3}{10} \div \frac{4}{5} =$  \_\_\_\_\_

9.  $\frac{1}{2} \div \frac{2}{5} =$  \_\_\_\_\_

10.  $\frac{8}{9} \div \frac{1}{2} =$  \_\_\_\_\_

11.  $4\frac{1}{4} \div \frac{3}{4} =$  \_\_\_\_\_

12.  $4 \div 1\frac{1}{8} =$  \_\_\_\_\_

13. A recipe for one loaf of banana bread requires  $\frac{2}{3}$  cup of oil. You have 2 cups of oil. How many loaves of banana bread can you make? \_\_\_\_\_ loaves

14. Ayita made  $5\frac{1}{2}$  cups of trail mix. She wants to divide the trail mix into  $\frac{3}{4}$  cup servings. How many servings will she have? \_\_\_\_\_ serving(s)

15. Dao has  $2\frac{3}{8}$  pounds of hamburger meat. He is making  $\frac{1}{4}$ -pound burgers. How many hamburgers can he make? \_\_\_\_\_ hamburger(s)

16. A rectangular piece of land has an area of  $\frac{3}{4}$  square mile and is  $\frac{1}{2}$  mile wide. What is the length? \_\_\_\_\_ mile(s)

17. Write a real-world problem whose solution requires dividing the fractions  $\frac{1}{3}$  and  $\frac{3}{4}$ . Then solve your problem.

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**Multiplication and Division Expressions**

Evaluate the expression  $4n$   
when  $n = 23$ .

**Step 1**  $4(n)$

**Step 2**  $4(23)$

**Step 3**  $92$

Evaluate the expression  $\frac{n}{3}$   
when  $n = 102$ .

**Step 1**  $\frac{n}{3}$

**Step 2**  $\frac{102}{3}$

**Step 3**  $34$

**Practice** • Evaluate the expression  $3n$  when

1.  $n = 9$ . \_\_\_\_\_

2.  $n = 30$ . \_\_\_\_\_

3.  $n = 42$ . \_\_\_\_\_

4.  $n = 201$ . \_\_\_\_\_

Evaluate the expression  $\frac{x}{6}$  when

5.  $x = 24$ . \_\_\_\_\_

6.  $x = 54$ . \_\_\_\_\_

7.  $x = 66$ . \_\_\_\_\_

8.  $x = 96$ . \_\_\_\_\_

Evaluate the expression  $5y$  when

9.  $y = 3$ . \_\_\_\_\_

10.  $y = 8$ . \_\_\_\_\_

11.  $y = 19$ . \_\_\_\_\_

12.  $y = 130$ . \_\_\_\_\_

Evaluate the expression  $\frac{n}{2}$  when

13.  $n = 14$ . \_\_\_\_\_

14.  $n = 36$ . \_\_\_\_\_

15.  $n = 60$ . \_\_\_\_\_

16.  $n = 110$ . \_\_\_\_\_

Evaluate each expression when  $n = 6$ .

17.  $\frac{3 \times n}{3}$  \_\_\_\_\_

18.  $\frac{3n}{3}$  \_\_\_\_\_

19.  $3 \times \frac{n}{3}$  \_\_\_\_\_

20.  $3(\frac{n}{3})$  \_\_\_\_\_

Evaluate each expression when  $a = 80$ .

21.  $\frac{4 \times a}{4}$  \_\_\_\_\_

22.  $\frac{4a}{4}$  \_\_\_\_\_

23.  $4 \times \frac{a}{4}$  \_\_\_\_\_

24.  $4(\frac{a}{4})$  \_\_\_\_\_

Evaluate each expression when  $n = 18$ .

25.  $(n \times 3) \div 3$  \_\_\_\_\_

26.  $(n \div 3) \times 3$  \_\_\_\_\_

Evaluate each expression when  $x = 25$ .

27.  $(x \times 4) - 50$  \_\_\_\_\_

28.  $(x \div 5) + 20$  \_\_\_\_\_

Write the expressions.

29. the product of 12 and a number  $y$

\_\_\_\_\_

30. the quotient when  $5n$  is divided by 5

\_\_\_\_\_

31. 9 times a number  $c$

\_\_\_\_\_

32. a number  $x$  divided by 7

\_\_\_\_\_

33. the quotient when a number  $y$  is divided  
by 6

\_\_\_\_\_

34. a number  $x$  multiplied by 15

\_\_\_\_\_

**Addition and Subtraction Expressions**

Evaluate the expression  $n + 10$  when  $n = 25$ .

**Step 1**  $n + 10$

**Step 2**  $25 + 10$

**Step 3**  $35$

Evaluate the expression  $30 - n$  when  $n = 20$ .

**Step 1**  $30 - n$

**Step 2**  $30 - 20$

**Step 3**  $10$

**Practice** • Evaluate the expression  $x + 8$  when

1.  $x = 5$ . \_\_\_\_\_ 2.  $x = 12$ . \_\_\_\_\_ 3.  $x = 20$ . \_\_\_\_\_ 4.  $x = 101$ . \_\_\_\_\_

Evaluate the expression  $y - 4$  when

5.  $y = 10$ . \_\_\_\_\_ 6.  $y = 15$ . \_\_\_\_\_ 7.  $y = 25$ . \_\_\_\_\_ 8.  $y = 108$ . \_\_\_\_\_

Evaluate the expression  $16 + n$  when

9.  $n = 3$ . \_\_\_\_\_ 10.  $n = 15$ . \_\_\_\_\_ 11.  $n = 62$ . \_\_\_\_\_ 12.  $n = 89$ . \_\_\_\_\_

Evaluate the expression  $52 - x$  when

13.  $x = 12$ . \_\_\_\_\_ 14.  $x = 20$ . \_\_\_\_\_ 15.  $x = 38$ . \_\_\_\_\_ 16.  $x = 41$ . \_\_\_\_\_

Evaluate the expression  $n + 86$  when

17.  $n = 3$ . \_\_\_\_\_ 18.  $n = 11$ . \_\_\_\_\_ 19.  $n = 108$ . \_\_\_\_\_ 20.  $n = 604$ . \_\_\_\_\_

Evaluate the expression  $25 - x$  when

21.  $x = 19$ . \_\_\_\_\_ 22.  $x = 2$ . \_\_\_\_\_ 23.  $x = 10$ . \_\_\_\_\_ 24.  $x = 22$ . \_\_\_\_\_

Evaluate the expression  $z + 101$  when

25.  $z = 14$ . \_\_\_\_\_ 26.  $z = 24$ . \_\_\_\_\_ 27.  $z = 100$ . \_\_\_\_\_ 28.  $z = 321$ . \_\_\_\_\_

Evaluate the expression  $z - 123$  when

29.  $z = 400$ . \_\_\_\_\_ 30.  $z = 125$ . \_\_\_\_\_ 31.  $z = 201$ . \_\_\_\_\_ 32.  $z = 643$ . \_\_\_\_\_

Evaluate the expression  $n + 6 - 6$  when

33.  $n = 16$ . \_\_\_\_\_ 34.  $n = 24$ . \_\_\_\_\_ 35.  $n = 5$ . \_\_\_\_\_ 36.  $n = 52$ . \_\_\_\_\_

Write the expressions.

37. the sum of a number  $n$  and 3 \_\_\_\_\_ 38. a number  $y$  decreased by 5 \_\_\_\_\_

39. 17 less than a number  $y$  \_\_\_\_\_ 40. a number  $x$  increased by 14 \_\_\_\_\_

41. 32 decreased by a number  $b$  \_\_\_\_\_ 42. 20 more than a number  $n$  \_\_\_\_\_

**Fractions and Decimals**

Write a decimal for  $\frac{5}{8}$ . Divide the numerator by the denominator. Divide until the remainder is 0.

Step 1

$$\begin{array}{r} 0.6 \\ 8 \overline{)5.0} \\ \underline{48} \\ 2 \end{array}$$

Step 2

$$\begin{array}{r} 0.62 \\ 8 \overline{)5.00} \\ \underline{48} \\ 20 \\ \underline{16} \\ 4 \end{array}$$

Step 3

$$\begin{array}{r} 0.625 \\ 8 \overline{)5.000} \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

**Practice** • Write as fractions, whole numbers, or mixed numbers.  
Write the answers in lowest terms.

1. 0.4 \_\_\_\_\_

2. 0.25 \_\_\_\_\_

3. 8.20 \_\_\_\_\_

4. 3.000 \_\_\_\_\_

5. 0.60 \_\_\_\_\_

6. 0.8 \_\_\_\_\_

7. 2.25 \_\_\_\_\_

8. 5.00 \_\_\_\_\_

9. 0.45 \_\_\_\_\_

10. 1.2 \_\_\_\_\_

11. 0.10 \_\_\_\_\_

12. 3.12 \_\_\_\_\_

Write as decimals.

13.  $\frac{4}{25}$  \_\_\_\_\_

14.  $\frac{1}{2}$  \_\_\_\_\_

15.  $1\frac{17}{20}$  \_\_\_\_\_

16.  $\frac{1}{16}$  \_\_\_\_\_

17.  $\frac{3}{50}$  \_\_\_\_\_

18.  $\frac{4}{5}$  \_\_\_\_\_

19.  $\frac{7}{8}$  \_\_\_\_\_

20.  $\frac{7}{10}$  \_\_\_\_\_

21.  $\frac{1}{8}$  \_\_\_\_\_

22.  $\frac{9}{16}$  \_\_\_\_\_

23.  $\frac{9}{25}$  \_\_\_\_\_

24.  $\frac{13}{50}$  \_\_\_\_\_

25.  $\frac{12}{25}$  \_\_\_\_\_

26.  $\frac{17}{20}$  \_\_\_\_\_

27.  $\frac{1}{5}$  \_\_\_\_\_

28.  $\frac{9}{50}$  \_\_\_\_\_

29.  $\frac{15}{16}$  \_\_\_\_\_

30.  $\frac{9}{10}$  \_\_\_\_\_

31.  $\frac{5}{16}$  \_\_\_\_\_

32.  $\frac{8}{25}$  \_\_\_\_\_

33.  $\frac{5}{8}$  \_\_\_\_\_

34.  $\frac{2}{5}$  \_\_\_\_\_

35.  $\frac{1}{4}$  \_\_\_\_\_

36.  $\frac{3}{8}$  \_\_\_\_\_

37.  $\frac{1}{10}$  \_\_\_\_\_

38.  $\frac{7}{20}$  \_\_\_\_\_

39.  $\frac{7}{25}$  \_\_\_\_\_

40.  $\frac{3}{40}$  \_\_\_\_\_

41.  $\frac{11}{16}$  \_\_\_\_\_

42.  $\frac{9}{40}$  \_\_\_\_\_

43.  $\frac{9}{20}$  \_\_\_\_\_

44.  $\frac{3}{16}$  \_\_\_\_\_



**PRACTICE****Solving Proportions**

Archaeologists found that certain Indian tribes always buried 2 arrowheads with every 5 beads.  
How many arrowheads would be found with 15 beads?

Write a proportion.  $\frac{2}{5} = \frac{n}{15}$

Use cross products.  $\frac{2}{5} \times \frac{n}{15}$

$$30 = 5n$$

Solve the equation.  $6 = n$  There would be 6 arrowheads.

**Practice** • Solve the proportions.

1.  $\frac{2}{7} = \frac{n}{49}$  \_\_\_\_\_

2.  $\frac{1}{3} = \frac{5}{n}$  \_\_\_\_\_

3.  $\frac{2}{5} = \frac{n}{25}$  \_\_\_\_\_

4.  $\frac{5}{12} = \frac{10}{n}$  \_\_\_\_\_

5.  $\frac{7}{20} = \frac{14}{n}$  \_\_\_\_\_

6.  $\frac{8}{3} = \frac{n}{6}$  \_\_\_\_\_

7.  $\frac{5}{9} = \frac{1.5}{n}$  \_\_\_\_\_

8.  $\frac{10}{7} = \frac{n}{2.1}$  \_\_\_\_\_

9.  $\frac{3}{8} = \frac{n}{32}$  \_\_\_\_\_

10.  $\frac{2}{11} = \frac{8}{n}$  \_\_\_\_\_

11.  $\frac{5}{7} = \frac{n}{28}$  \_\_\_\_\_

12.  $\frac{5}{1} = \frac{50}{n}$  \_\_\_\_\_

13.  $\frac{4}{5} = \frac{n}{20}$  \_\_\_\_\_

14.  $\frac{1}{4} = \frac{8}{n}$  \_\_\_\_\_

15.  $\frac{7}{1} = \frac{n}{8}$  \_\_\_\_\_

16.  $\frac{7}{10} = \frac{28}{n}$  \_\_\_\_\_

17.  $\frac{6}{2} = \frac{36}{n}$  \_\_\_\_\_

18.  $\frac{25}{3} = \frac{75}{n}$  \_\_\_\_\_

19.  $\frac{1}{8} = \frac{n}{32}$  \_\_\_\_\_

20.  $\frac{3}{5} = \frac{n}{40}$  \_\_\_\_\_

21.  $\frac{6}{7} = \frac{n}{56}$  \_\_\_\_\_

22.  $\frac{4}{5} = \frac{n}{30}$  \_\_\_\_\_

23.  $\frac{8}{3} = \frac{40}{n}$  \_\_\_\_\_

24.  $\frac{6}{7} = \frac{24}{n}$  \_\_\_\_\_

25.  $\frac{2}{5} = \frac{6}{n}$  \_\_\_\_\_

26.  $\frac{4}{11} = \frac{n}{55}$  \_\_\_\_\_

27.  $\frac{7}{2} = \frac{28}{n}$  \_\_\_\_\_

28.  $\frac{3}{7} = \frac{n}{42}$  \_\_\_\_\_

29.  $\frac{3}{10} = \frac{n}{60}$  \_\_\_\_\_

30.  $\frac{4}{13} = \frac{12}{n}$  \_\_\_\_\_

31.  $\frac{1}{4} = \frac{15}{n}$  \_\_\_\_\_

32.  $\frac{9}{1} = \frac{n}{11}$  \_\_\_\_\_

33.  $\frac{5}{6} = \frac{30}{n}$  \_\_\_\_\_

34.  $\frac{3}{4} = \frac{30}{n}$  \_\_\_\_\_

35.  $\frac{3}{2} = \frac{n}{36}$  \_\_\_\_\_

36.  $\frac{3}{5} = \frac{n}{2.5}$  \_\_\_\_\_

37.  $\frac{1}{2} = \frac{2.1}{n}$  \_\_\_\_\_

38.  $\frac{1}{12} = \frac{n}{9.6}$  \_\_\_\_\_

39.  $\frac{1}{7} = \frac{1.3}{n}$  \_\_\_\_\_

40.  $\frac{9}{10} = \frac{n}{20}$  \_\_\_\_\_

**Problem Solving** • Applications

A small gear makes 5 turns for every 3 turns of a larger gear.

41. How many turns will the larger gear make if the smaller gear makes 30 turns?  
\_\_\_\_\_

42. How many turns will the smaller gear make if the larger gear makes 27 turns?  
\_\_\_\_\_

## **Entering 7<sup>th</sup> grade, Summer Reading Requirements:**

### Your choice books:

If you are a student in seventh grade, please choose and read one book:

1. *Maniac Magee* by Jerry Spinelli (Guided Reading Level W)
2. *Loser* by Jerry Spinelli (Guided Reading Level U)
3. *Middle School The Worst Years of My Life* by James Patterson (Guided Reading Level V)
4. *Esperanza Rising* by Pam Munoz Ryan (Guided Reading Level V)
5. *The One and Only Ivan* by Katherine Applegate (Guided Reading Level S)
6. *Unbreakable* by Kami Garcia (Guided Reading Level Y)

### Your assignment:

Please complete the following assignment and bring it to your English/ Language Arts teacher by Friday, September 27, 2019.

1. Choose a central character from the novel you have chosen to read and create a character bag. Choose 5-10 items that represent that character and put it in the bag. Consider the character's interests, actions and interactions with other characters during the events of the novel to choose your items. If you cannot find or fit the actual item in the bag, then you can use a picture.
2. Describe each item in the bag. Give details and explain why you chose the item for your character. For example, explain how this came up in the novel and why is it important to the character. This must be completed in 3-5 complete sentences, preferably typed, but can be neatly written on lined paper.

### Your in-school assessment:

In the second week of school, you may be asked to present your "Character Bag" and/or be given a writing assessment in English/ Language Arts class about this assignment. It will involve analyzing one of the characters in the novel you read. This will be your first writing assessment for the school year.

Please note, this is a graded assignment by your English Language Arts Teacher. Complete both parts of the assignment to receive maximum credit! Put forth a good effort and we look forward to seeing you in September 2019!