Evaluating Expressions

Lesson Essential Question

How do we evaluate an expression for a given value?

How do we evaluate an algebraic expression?

In algebra, to evaluate means to substitute a number for the variable.

EXAMPLE 1:

Evaluate the expression n + 7, when n = 3

SOLUTION: (wherever I see the variable n, replace it with 3)

$n + 7 = (3) + 7$

$= 10$

EXAMPLE 2:

Evaluate the expression 3x, when x = 3

SOLUTION: (wherever I see the variable x, replace it with 3)

$3x = 3(3)$

$= 9$

EXAMPLE 3:

Evaluate the expression 3x + 7, when x = 3

SOLUTION: (wherever I see the variable x, replace it with 3)

$3x + 7 = 3(3) + 7$

$= 9 + 7 = 16$

Why do we use parenthesis?

Parenthesis help us keep track of the number we've replaced the variable with.

Evaluating Expressions

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Lesson Essential Question

How do we evaluate an expression for a given value?

PRACTICE we try together

IN PEN

EVALUATE EACH EXPRESSION

1) 4t, when t = 6 **2) x - 8, when x = 9** **3) 63 ÷ z, z = 9**

4) 3r + 5, r = 6 **5) 2 -7w, w = -4** **6) 2e + 5e, e = -4**

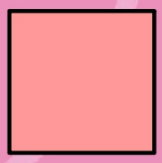
Don't forget our calculations with rational numbers.

$m + 2.8$, $m = -4.3$

substitute
simplify

$r^2 - 3$, $r = 5$

substitute
simplify

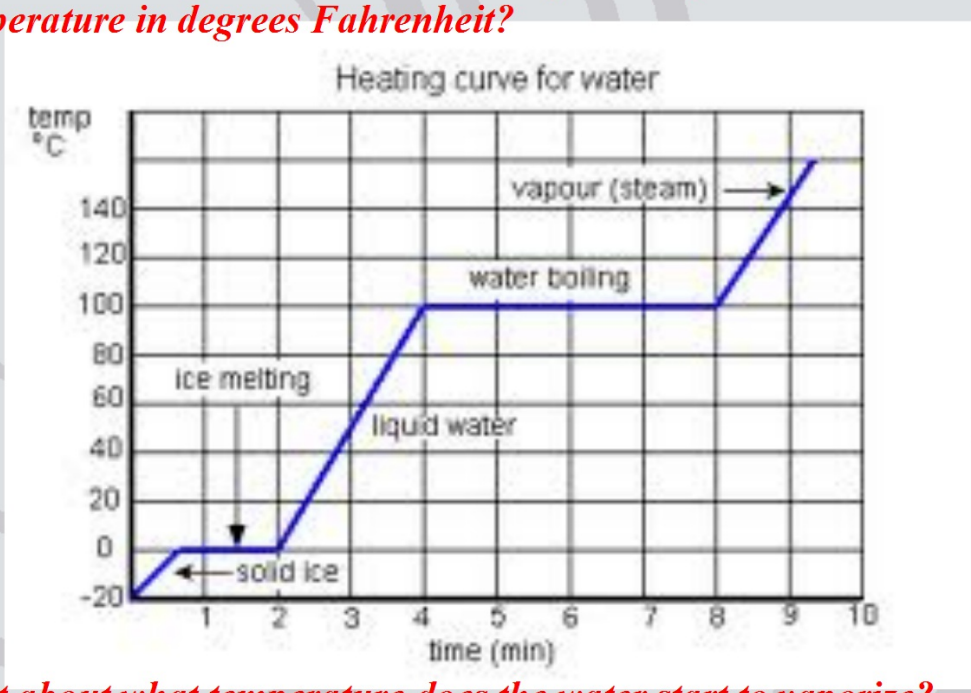


$(-s)(t)$, $s = 1/3$ $t = 1\ 4/5$

substitute
simplify

WORD APPLICATION

1) The expression 1.8c + 32 can be used to convert a temperature in degrees Celsius, C, to degrees Fahrenheit, F. If the temperature is 40° C, what is the temperature in degrees Fahrenheit?

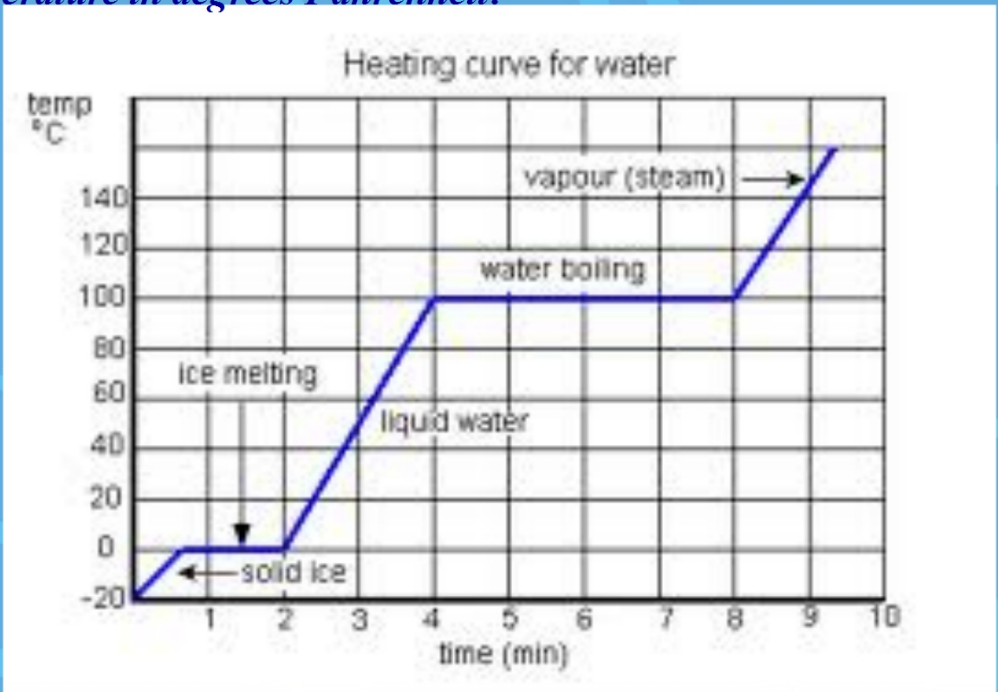


2) At about what temperature does the water start to vaporize?

3) What is the vapor point in degrees Fahrenheit?

EXIT TICKET

1) The expression 1.8c + 32 can be used to convert a temperature in degrees Celsius, C, to degrees Fahrenheit, F. If the temperature is 30° C, what is the temperature in degrees Fahrenheit?



2) At what temperature does the water start to boil?

3) What is the boiling point in degrees Fahrenheit?

Monday
Oct. 19

Warm Up
Cornell Notes
Evaluation
Combine Like Terms
Practice
Handout
Exit Ticket

Quiz Thursday!

WARM UP

Write the definition for each VOCABULARY term:

algebraic expression
numerical expression
coefficient
variable
evaluate
constant

Monday October 19 (H)

AGENDA

- Warm-Up
- Review homework
- Combining Like Terms
- Practice handout

Warm-Up

Write the definition for each VOCABULARY term:

algebraic expression
numerical expression
coefficient
variable
evaluate
constant
solution
term
Like Terms
distribute
Greatest Common Factor (GCF)
Least Common Multiple (LCM)

Tuesday
Oct. 20

Warm Up
Review
Homework
Cornell Notes
Combine Like Terms
Distribution
Practice
Handout
Exit Ticket

Quiz Thursday!

Warm Up

Write the definition for each VOCABULARY term:

solution
term
Like Terms
distribute
Greatest Common Factor (GCF)
Least Common Multiple (LCM)

Tuesday October 20 (H)

AGENDA

- Warm-Up
- Review homework
- Distribution
- Practice handout

Warm-Up Evaluate the expression.

1. $5y - 1$, for $y = 3$

2. $p \div 7 + p$, $p = 14$

3. $5a - 3b + 5$ (for $a = 4$ & $b = 3$)

4. $3x^2 + 2y - 50$ (for $x = 5$ & $y = 10$)

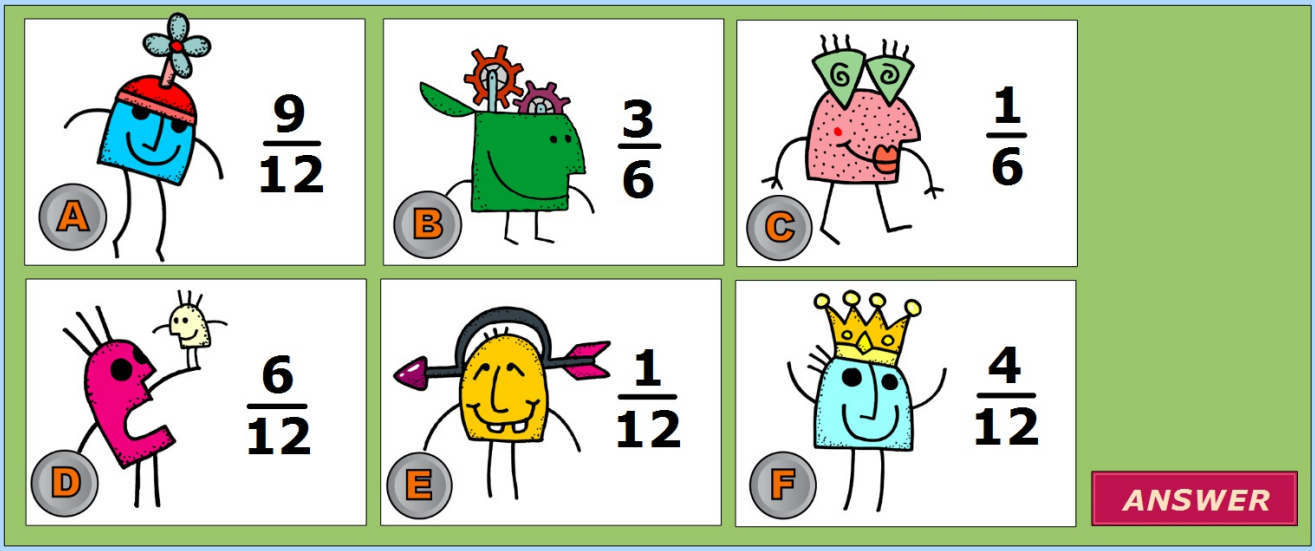
5. $\frac{xy+y}{y}$, $x = 7$ & $y = 5$

6. The expression $1.8c + 32$ can be used to convert temperature in degrees Celcius c to degrees Fahrenheit. What is the temperature in degrees Fahrenheit, if it is 25°C in Jamaica?

Flashback!

Which two options represent equivalent fractions?

Response category: *Enhanced multiple choice*



ike Terms

finition of
terms

Like Terms are Terms that have the same variable and the same degree
meaning the same letter with the same exponent

How many of you do laundry??

Darks
Whites
Lights
Handwash

rms that have the
me variable and the
me degree

aning the same letter
n the same exponent

Identify like terms.

1. $3a \quad b^2 \quad b^3 \quad 4b^2 \quad 4 \quad 5a$

2. $x \quad x^4 \quad 4x \quad 4x^2 \quad 4x^4 \quad 3x^2$

3. $6m \quad 6m^2 \quad n^2 \quad 2n \quad 2 \quad 4m \quad 5n$

4. $12s \quad 7s^4 \quad 9s \quad s^2 \quad 5 \quad 5s^4 \quad 2$

ike Terms

ou can add
nd subtract
IKE TERMS

ember for
NUS" - same-
nge-change

1. for 'minus' - same-change-change

2. use circles, squares , triangles, lines or colored hi-liters to group like terms

3. Use integer rules to combine

Combine like terms.

5. $2p + 22q^2 - p$

_____

7. $n^4 + n^3 + 3n - n - n^3$

_____

9. $32m^2 + 14n^2 - 12m^2 + 5n -$

_____

Try These - on your side!

6. $x^2 + 3x^2 - 4^2$

_____

8. $4a + 4b + 2 - 2a + 5b - 1$

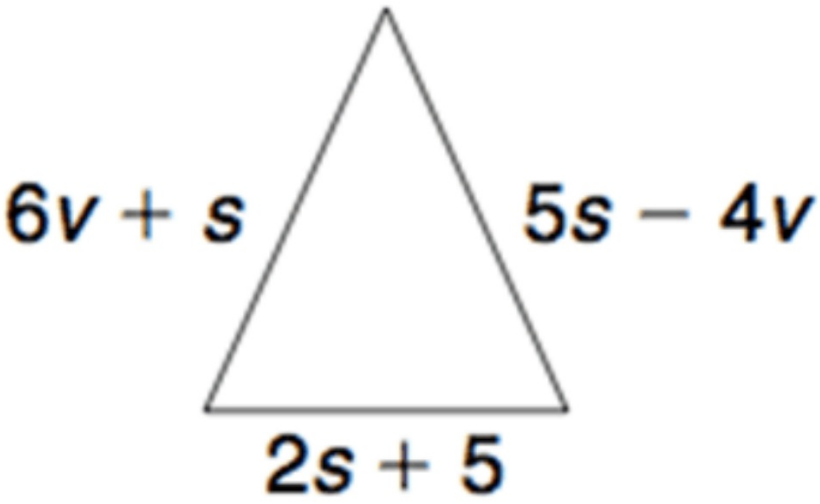
_____

10. $2h^2 + 3g - 2h^2 + 2^2 - 3 + 4g$

_____

How is this related to our topic today?

Find the perimeter…



Try This

Exit Ticket

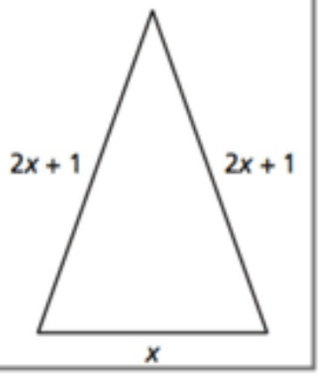
1. Identify like terms in the list.

$2x$ $4y^3$ $8x$ $5z$ $5y^3$ $8z$

2. Combine like terms.

$4x^2 + 4y + 3x^2 - 4y + 2x^2 + 5$

3. Write an expression for the perimeter of the triangle shown. Combine like terms in the expression.



EXIT TICKET

Simplify each expression by Combining Like Terms.

3a + 5a

4a - 5a + 6a

6b - 5 - 7b

-2b - 8 - b + 9

Wednesday
Oct. 21

Warm Up
Review Homework
Cornell Notes
Distribution Word Problems
Practice Handout
Exit Ticket

Quiz Thursday!

Warm Up

1) Which could be the first step in simplifying the expression?

$2x - 3(5x - 8)$

2) Write the equivalent expression for $(5x + 6y - 3z) + (3x - 8y + z)$.

3) Chuck is 6 years younger than Pete. Pete is 3 times older than Roy who is five years old. How old is Chuck?

Wednesday
October 21
(H)

AGENDA

- Welcome
- Warm-Up
- Cornell Notes: Distributive Property

Thur: Quiz

Warm-Up

Evaluate the expression.

1. $9y - 4y,\ y = \frac{1}{5}$

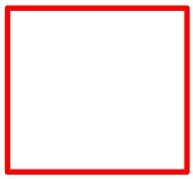
2. $\frac{2k^2 - 3k^2 + 4}{k}$, k = 2

Simplify each expression by combining like terms.

3. $a^2 + 2b + 3a^2 - c + b$

4. $16m^2 + 8n^2 - 17m^2 + 5n - 3$

5. Write an expression for the perimeter of the square.

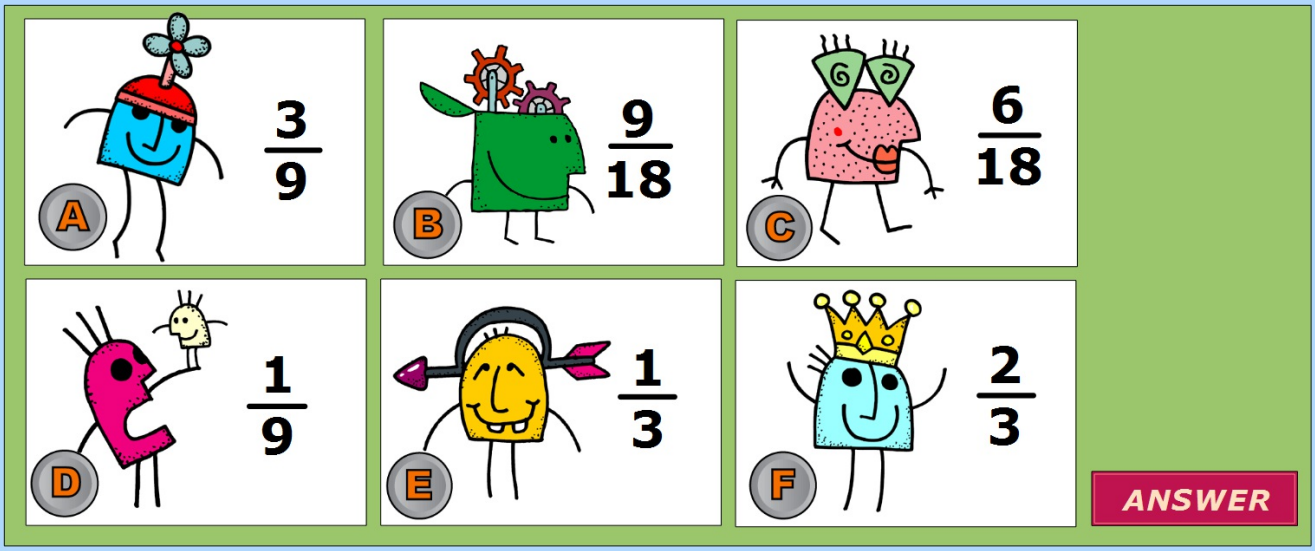


$2 + 3a$

Flashback!

Which three options represent equivalent fractions?

Response category: *Enhanced multiple choice*



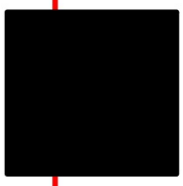
DISTRIBUTIVE PROPERTY

Definition

Distributive Property

If I multiply a number by a sum, it is the same as multiplying that number by each number in the sum and adding their products together.

Example: $2(4 + 6)$



$2(4 + 6) = 2(4) + 2(6)$

$2\ (10) \quad = \ 8 \ + 12$

$20 \quad = \ 20$

Think: Can we ADD a variable and constant?

Example: $2(x + 6)$

$2(x + 6) = 2(x) + 2(6)$

$2(x + 6) = \ 2x \ + 12$

Additional Examples — **DISTRIBUTIVE PROPERTY**

Example: $2(3 - p)$

$2(3 - p) = 2(3) - 2(p)$

$2(3 - p) = 6 - 2p$

Example: $x(y + 2y)$

$x(y + 2y) = x(y) + x(2y)$

$x(y + 2y) = xy + 2xy$

$x(y + 2y) = 3xy$

SIDE NOTE:

$2(3 - p)$ is the same as $(3 - p) \bullet 2$ or $(3 - p)2$

Example: $3a - 2(3 + a)$

Same-Change-Change
for
SUBTRACTION

$3a + {}^{-}2(3 + a) = 3a + {}^{-}2(3) + {}^{-}2(a)$

$= \boxed{3a} + {}^{-}6 + \boxed{{}^{-}2a}$

$=$

Your turn...

$2(4 + 9w)$

$-4(-4d - 5)$

$2(3v - 8)$

$4(-6z + 4)$

How is this related to our topic today?

Find the area...

b + 2

a

EXIT TICKET

Simplify each expression by using the Distributive Property.

2(a + b)

2(a + b) + 7

3(x + 5)

3(x - 5)

WORD PROBLEM PRACTICE

Sophie caught twice as many fish as her dad. If her dad caught F fish, how many did Sophie catch?

Which is the equivalent od the following 7(5n + 1)?

A 36n
B 42n
C 35n + 1
D 35n + 7

Which of the following is equivalent to 3(8x + 2)?
A 26x
B 30x
C 24x + 2
D 24x + 6

Erica volunteered to go to yhe board to show how to correctly add (x - 1) and 3(x + 2). What should Erica's answer be?

Simplify.

5b - 2(7 - b)

What is the simplified form of
4(2x - 5y) - 3x?

Copy the given expression and chart. Choose the correct answer. in complete sentences explain why your selection is correct and why each of the others are not.

$$4(2x + 10y)$$

8(x + 5y)	8x + 10y
8(x + 10y)	8x + 14y

Thursday
October 22

AGENDA

- Welcome
- Warm-Up
- Review homework
- Bingo
- Quiz

Note:
no school tomorrow

Warm-Up

Simplify.

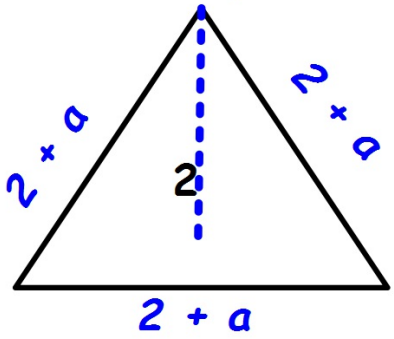
1. $9(y + 7) =$

2. $3(4 - k) =$

3. $s(6 - 2a) =$

4. $(m + 12) \bullet 3$

5. Looking at triangle below, write an expression to find the perimeter. Then simplify.



Flashback!

Which two options represent equivalent fractions?

Response category: *Enhanced multiple choice*