

Order of Operations

Do the work inside the parentheses first.

Remember

Parentheses () group numbers. Work inside them first.

$$(4 + 2) \times 5 = 6 \times 5 = 30$$

$$4 + (2 \times 5) = 4 + 10 = 14$$

Find the value. Do the part in parentheses first.

Example

$$(12 - 4) \times 6$$

$$= 8 \times 6 = 48$$

$$1. (7 + 8) \times 3$$

$$= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$2. 9 \times (12 - 6)$$

$$= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$3. 48 \div (2 + 6)$$

$$= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$4. (25 + 15) \div 5$$

$$= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$5. 60 - (6 + 7)$$

$$= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Same numbers, different groups. Find each value.

Example

$$(3 + 5) \times 4 = \underline{32}$$

$$3 + (5 \times 4) = \underline{23}$$

$$6. (20 - 8) \div 4 = \underline{\hspace{2cm}}$$

$$20 - (8 \div 4) = \underline{\hspace{2cm}}$$

$$7. (6 \times 5) - 2 = \underline{\hspace{2cm}}$$

$$6 \times (5 - 2) = \underline{\hspace{2cm}}$$

$$8. 36 \div (3 \times 3) = \underline{\hspace{2cm}}$$

$$(36 \div 3) \times 3 = \underline{\hspace{2cm}}$$

Order of Operations

Multiply and divide before you add and subtract.

The order of operations

1

()

Groups first



2

 $\times \div$

Left to right



3

 $+-$

Left to right

Find the value.

Example

$5 + 4 \times 3 = \underline{17}$

$1. \quad 21 - 12 \div 4 = \underline{\quad}$

$2. \quad 18 \div 3 \times 2 = \underline{\quad}$

$3. \quad 30 - 10 + 5 = \underline{\quad}$

$4. \quad 6 \times 4 - 2 \times 5 = \underline{\quad}$

$5. \quad 40 \div 5 + 3 \times 6 = \underline{\quad}$

Number the operations 1, 2, 3, ... in order. Then find the value.

Example

$$\begin{array}{ccccc} & \textcircled{2} & \textcircled{1} & \textcircled{3} & \\ & | & | & | & \\ 20 & - & 3 \times & 4 + & 6 \end{array} = \underline{14}$$

$$\begin{array}{ccccc} & \textcircled{} & \textcircled{} & \textcircled{} & \\ & | & | & | & \\ 6. & (9 + 3) \div & 4 \times & 5 & \end{array} = \underline{\quad}$$

$$\begin{array}{ccccc} & \textcircled{} & \textcircled{} & \textcircled{} & \\ & | & | & | & \\ 7. & 7 + & 24 \div & (8 - 2) & \end{array} = \underline{\quad}$$

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$$\begin{array}{ccccccc} & \textcircled{} & \textcircled{} & \textcircled{} & \textcircled{} & & \\ & | & | & | & | & & \\ 10. & 7 - & 6 \div & 3 + & 2 \times & 4 & \end{array} = \underline{\quad}$$

Order of Operations

Work from the inside out: (), then [], then { }.

Grouping symbols

() parentheses

[] brackets

{ } braces

For example: $2 \times [5 + (3 \times 4)] = 2 \times [5 + 12] = 2 \times 17 = 34$

Find the value. Show each step.

Example

$$3 \times [10 - (2 + 5)]$$

$$= 3 \times [10 - 7]$$

$$= 3 \times 3$$

$$= 9$$

$$1. [18 - (4 \times 3)] \div 2$$

= _____

= _____

= _____

$$2. 40 - [3 \times (5 + 4)]$$

= _____

= _____

= _____

$$3. 5 \times [(9 - 3) + 4]$$

= _____

= _____

= _____

Find the value. Use the space to work it out.

Example

$$\{2 + [3 \times (8 - 5)]\} \times 4$$

$$= \{2 + [3 \times 3]\} \times 4$$

$$= \{2 + 9\} \times 4$$

$$= 11 \times 4$$

$$= 44$$

$$4. 60 \div \{2 \times [1 + (6 - 4)]\}$$

= _____

$$5. \{[(7 + 5) \div 4] \times 9\} - 20$$

= _____

$$6. 100 - \{5 \times [2 + (3 \times 4)]\}$$

= _____

Order of Operations

Write and read expressions. Compare them without working them out.

Write an expression for the words, or words for the expression.

In words	Expression
Example Add 8 and 7, then multiply by 2	$2 \times (8 + 7)$
1. Subtract 4 from 20, then divide by 2	_____
2. _____	$6 \times (9 + 3)$
3. Multiply 5 by 6, then add 7	_____
4. _____	$(30 - 6) \div 3$

Write an expression for each story. Then find its value.

Example Ana buys 3 packs of pens. Each pack has 8 red pens and 4 blue pens. How many pens does she buy?

Expression: $3 \times (8 + 4)$

Value: 36

5. The cost of a \$15 pizza and a \$9 salad is split equally by 4 friends. How much does each friend pay?

Expression: _____

Value: _____

Compare without finding the value.

Example $3 \times (18,932 + 921)$ is 3 times as large as $18,932 + 921$

6. $(4,056 + 289) \times 6$ is _____ times as large as $4,056 + 289$

7. Expression: _____ is 4 times as large as $2,315 - 87$

Find the value of each expression when $n = 6$.

Example $3 \times (n + 2) = 3 \times (6 + 2) = 24$

8. $(n - 1) \times 4 =$ _____

9. $54 \div n + 1 =$ _____

10. $n \times n + 4 =$ _____

Order of Operations

Is it true? Where do the parentheses go? Then solve the riddle.

Is each equation true? Circle True or False.

Example

$$(6 + 4) \times 3 = 6 + 12$$

True

False

1. $24 \div (4 + 2) = 4$

True

False

2. $5 \times (7 - 3) = 5 \times 7 - 5 \times 3$

True

False

3. $18 - (6 + 2) = 18 - 6 + 2$

True

False

Add one pair of parentheses to make each equation true.

Example

$$2 \times (5 + 3) = 16$$

4. $4 + 6 \times 3 = 30$

5. $20 - 8 - 2 = 14$

6. $36 \div 6 - 2 = 9$

7. $7 + 3 \times 5 - 2 = 16$

8. $3 \times 4 + 2 \times 5 = 70$

Riddle: Where do math teachers go on vacation?

Example

$4 + 6 \times 3 = 22$, so write T in each box above 22.

R

$$6 \times (9 - 4) = \underline{\quad}$$

E

$$36 \div (2 + 7) = \underline{\quad}$$

U

$$64 \div 8 \times 3 = \underline{\quad}$$

N

$$2 \times 9 + 9 = \underline{\quad}$$

I

$$(9 - 3) \times 7 = \underline{\quad}$$

A

$$(6 + 3) \times 4 = \underline{\quad}$$

S

$$8 \times 4 - 15 = \underline{\quad}$$

M

$$50 - 8 \times 5 = \underline{\quad}$$

Q

$$3 + 27 \div 3 = \underline{\quad}$$

T

22

42

10

4

17

17

12

24

36

30

4

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Same numbers, different groups. Find each value.

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Order of Operations

Multiply and divide before you add and subtract.

The order of operations

①

()

Groups first



②

 $\times \div$

Left to right



③

 $+-$

Left to right

Find the value.

Example

$5 + 4 \times 3 = \underline{17}$

$1. \quad 21 - 12 \div 4 = \underline{\quad}$

$2. \quad 18 \div 3 \times 2 = \underline{\quad}$

$3. \quad 30 - 10 + 5 = \underline{\quad}$

$4. \quad 6 \times 4 - 2 \times 5 = \underline{\quad}$

$5. \quad 40 \div 5 + 3 \times 6 = \underline{\quad}$

Number the operations 1, 2, 3, ... in order. Then find the value.

Example

$$\begin{array}{ccccc} & \textcircled{2} & \textcircled{1} & \textcircled{3} & \\ & | & | & | & \\ 20 & - & 3 \times & 4 + & 6 \end{array} = \underline{14}$$

$$\begin{array}{ccccc} & \bigcirc & \bigcirc & \bigcirc & \\ & | & | & | & \\ 6. & (9 + 3) \div & 4 \times & 5 & \end{array} = \underline{\quad}$$

$$\begin{array}{ccccc} & \bigcirc & \bigcirc & \bigcirc & \\ & | & | & | & \\ 7. & 7 + & 24 \div & (8 - 2) & \end{array} = \underline{\quad}$$

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$$\begin{array}{ccccccc} & \bigcirc & \bigcirc & \bigcirc & \bigcirc & \\ & | & | & | & | & \\ 10. & 7 - & 6 \div & 3 + & 2 \times & 4 & \end{array} = \underline{\quad}$$

Order of Operations

Work from the inside out: (), then [], then { }.

Grouping symbols

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{ } braces

For example: $2 \times [5 + (3 \times 4)] = 2 \times [5 + 12] = 2 \times 17 = 34$

Find the value. Show each step.

Example

$$3 \times [10 - (2 + 5)]$$

$$= 3 \times [10 - 7]$$

$$= 3 \times 3$$

$$= 9$$

$$1. [18 - (4 \times 3)] \div 2$$

= _____

= _____

= _____

$$2. 40 - [3 \times (5 + 4)]$$

= _____

= _____

= _____

$$3. 5 \times [(9 - 3) + 4]$$

= _____

= _____

= _____

Find the value. Use the space to work it out.

Example

$$\{2 + [3 \times (8 - 5)]\} \times 4$$

$$= \{2 + [3 \times 3]\} \times 4$$

$$= \{2 + 9\} \times 4$$

$$= 11 \times 4$$

$$= 44$$

$$4. 60 \div \{2 \times [1 + (6 - 4)]\}$$

= _____

$$5. \{[(7 + 5) \div 4] \times 9\} - 20$$

= _____

$$6. 100 - \{5 \times [2 + (3 \times 4)]\}$$

= _____

Order of Operations

Write and read expressions. Compare them without working them out.

Write an expression for the words, or words for the expression.

In words	Expression
Example Add 8 and 7, then multiply by 2	$2 \times (8 + 7)$
1. Subtract 4 from 20, then divide by 2	_____
2. _____	$6 \times (9 + 3)$
3. Multiply 5 by 6, then add 7	_____
4. _____	$(30 - 6) \div 3$

Write an expression for each story. Then find its value.

Example Ana buys 3 packs of pens. Each pack has 8 red pens and 4 blue pens. How many pens does she buy?

Expression: $3 \times (8 + 4)$

Value: 36

5. The cost of a \$15 pizza and a \$9 salad is split equally by 4 friends. How much does each friend pay?

Expression: _____

Value: _____

Compare without finding the value.

Example $3 \times (18,932 + 921)$ is 3 times as large as $18,932 + 921$

6. $(4,056 + 289) \times 6$ is _____ times as large as $4,056 + 289$

7. Expression: _____ is 4 times as large as $2,315 - 87$

Find the value of each expression when $n = 6$.

Example $3 \times (n + 2) = 3 \times (6 + 2) = 24$

8. $(n - 1) \times 4 =$ _____

9. $54 \div n + 1 =$ _____

10. $n \times n + 4 =$ _____

Order of Operations

Is it true? Where do the parentheses go? Then solve the riddle.

Is each equation true? Circle True or False.

Example

$$(6 + 4) \times 3 = 6 + 12$$

True

False

1. $24 \div (4 + 2) = 4$

True

False

2. $5 \times (7 - 3) = 5 \times 7 - 5 \times 3$

True

False

3. $18 - (6 + 2) = 18 - 6 + 2$

True

False

Add one pair of parentheses to make each equation true.

Example

$$2 \times (5 + 3) = 16$$

4. $4 + 6 \times 3 = 30$

5. $20 - 8 - 2 = 14$

6. $36 \div 6 - 2 = 9$

7. $7 + 3 \times 5 - 2 = 16$

8. $3 \times 4 + 2 \times 5 = 70$

Riddle: Where do math teachers go on vacation?

Example $4 + 6 \times 3 = 22$, so write T in each box above 22.

(R) $6 \times (9 - 4) =$ _____

(E) $36 \div (2 + 7) =$ _____

(U) $64 \div 8 \times 3 =$ _____

(N) $2 \times 9 + 9 =$ _____

(I) $(9 - 3) \times 7 =$ _____

(A) $(6 + 3) \times 4 =$ _____

(S) $8 \times 4 - 15 =$ _____

(M) $50 - 8 \times 5 =$ _____

(Q) $3 + 27 \div 3 =$ _____

T

22 42 10 4 17

17 12 24 36 30 4

Order of Operations

Do the work inside the parentheses first.

Remember

Parentheses () group numbers. Work inside them first.

$$(4 + 2) \times 5 = 6 \times 5 = 30$$

$$4 + (2 \times 5) = 4 + 10 = 14$$

Find the value. Do the part in parentheses first.

Example

$$(12 - 4) \times 6$$

$$= 8 \times 6 = 48$$

$$1. (7 + 8) \times 3$$

$$= 15 \times 3 = 45$$

$$2. 9 \times (12 - 6)$$

$$= 9 \times 6 = 54$$

$$3. 48 \div (2 + 6)$$

$$= 48 \div 8 = 6$$

$$4. (25 + 15) \div 5$$

$$= 40 \div 5 = 8$$

$$5. 60 - (6 + 7)$$

$$= 60 - 13 = 47$$

Same numbers, different groups. Find each value.

Example

$$(3 + 5) \times 4 = 32$$

$$3 + (5 \times 4) = 23$$

$$6. (20 - 8) \div 4 = 3$$

$$20 - (8 \div 4) = 18$$

$$7. (6 \times 5) - 2 = 28$$

$$6 \times (5 - 2) = 18$$

$$8. 36 \div (3 \times 3) = 4$$

$$(36 \div 3) \times 3 = 36$$

Order of Operations

Multiply and divide before you add and subtract.

The order of operations

1

()

Groups first



2

 $\times \div$

Left to right



3

 $+-$

Left to right

Find the value.

Example

$5 + 4 \times 3 = \underline{17}$

$1. \quad 21 - 12 \div 4 = \underline{18}$

$2. \quad 18 \div 3 \times 2 = \underline{12}$

$3. \quad 30 - 10 + 5 = \underline{25}$

$4. \quad 6 \times 4 - 2 \times 5 = \underline{14}$

$5. \quad 40 \div 5 + 3 \times 6 = \underline{26}$

Number the operations 1, 2, 3, ... in order. Then find the value.

Example

$$\begin{array}{ccccc} & \textcircled{2} & \textcircled{1} & \textcircled{3} & \\ & | & | & | & \\ 20 & - & 3 & \times & 4 + 6 = \underline{14} \end{array}$$

$$\begin{array}{ccccc} & \textcircled{1} & \textcircled{2} & \textcircled{3} & \\ & | & | & | & \\ 6. & (9 + 3) & \div & 4 \times 5 & = \underline{15} \end{array}$$

$$\begin{array}{ccccc} & \textcircled{3} & \textcircled{2} & \textcircled{1} & \\ & | & | & | & \\ 7. & 7 + 24 & \div & (8 - 2) & = \underline{11} \end{array}$$

$$\begin{array}{ccccc} & \textcircled{2} & \textcircled{1} & \textcircled{3} & \\ & | & | & | & \\ 8. & 40 - 6 & \times & 5 + 2 & = \underline{12} \end{array}$$

$$\begin{array}{ccccc} & \textcircled{2} & \textcircled{1} & \textcircled{3} & \\ & | & | & | & \\ 9. & 3 \times (10 - 4) & \div & 2 & = \underline{9} \end{array}$$

$$\begin{array}{ccccc} & \textcircled{3} & \textcircled{1} & \textcircled{4} & \textcircled{2} \\ & | & | & | & | \\ 10. & 7 - 6 & \div & 3 + 2 \times 4 & = \underline{13} \end{array}$$

Order of Operations

Work from the inside out: (), then [], then { }.

Grouping symbols

() parentheses

[] brackets

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For example: $2 \times [5 + (3 \times 4)] = 2 \times [5 + 12] = 2 \times 17 = 34$

Find the value. Show each step.

Example

$$3 \times [10 - (2 + 5)]$$

$$= 3 \times [10 - 7]$$

$$= 3 \times 3$$

$$= 9$$

$$1. [18 - (4 \times 3)] \div 2$$

$$= [18 - 12] \div 2$$

$$= 6 \div 2$$

$$= 3$$

$$2. 40 - [3 \times (5 + 4)]$$

$$= 40 - [3 \times 9]$$

$$= 40 - 27$$

$$= 13$$

$$3. 5 \times [(9 - 3) + 4]$$

$$= 5 \times [6 + 4]$$

$$= 5 \times 10$$

$$= 50$$

Find the value. Use the space to work it out.

Example

$$\{2 + [3 \times (8 - 5)]\} \times 4$$

$$= \{2 + [3 \times 3]\} \times 4$$

$$= \{2 + 9\} \times 4$$

$$= 11 \times 4$$

$$= 44$$

$$4. 60 \div \{2 \times [1 + (6 - 4)]\}$$

$$= 10$$

$$5. \{[(7 + 5) \div 4] \times 9\} - 20$$

$$= 7$$

$$6. 100 - \{5 \times [2 + (3 \times 4)]\}$$

$$= 30$$

Order of Operations

Write and read expressions. Compare them without working them out.

Write an expression for the words, or words for the expression.

In words	Expression
Example Add 8 and 7, then multiply by 2	$2 \times (8 + 7)$
1. Subtract 4 from 20, then divide by 2	$(20 - 4) \div 2$
2. Add 9 and 3, then multiply by 6	$6 \times (9 + 3)$
3. Multiply 5 by 6, then add 7	$5 \times 6 + 7$
4. Subtract 6 from 30, then divide by 3	$(30 - 6) \div 3$

Write an expression for each story. Then find its value.

Example Ana buys 3 packs of pens. Each pack has 8 red pens and 4 blue pens. How many pens does she buy?

Expression: $3 \times (8 + 4)$

Value: 36

5. The cost of a \$15 pizza and a \$9 salad is split equally by 4 friends. How much does each friend pay?

Expression: $(15 + 9) \div 4$

Value: \$6

Compare without finding the value.

Example $3 \times (18,932 + 921)$ is 3 times as large as $18,932 + 921$

6. $(4,056 + 289) \times 6$ is 6 times as large as $4,056 + 289$

7. Expression: $4 \times (2,315 - 87)$ is 4 times as large as $2,315 - 87$

Find the value of each expression when $n = 6$.

Example $3 \times (n + 2) = 3 \times (6 + 2) = 24$

8. $(n - 1) \times 4 =$ 20

9. $54 \div n + 1 =$ 10

10. $n \times n + 4 =$ 40

Order of Operations

Is it true? Where do the parentheses go? Then solve the riddle.

Is each equation true? Circle True or False.

Example

$$(6 + 4) \times 3 = 6 + 12$$

True

False

$$1. \quad 24 \div (4 + 2) = 4$$

True

False

$$2. \quad 5 \times (7 - 3) = 5 \times 7 - 5 \times 3$$

True

False

$$3. \quad 18 - (6 + 2) = 18 - 6 + 2$$

True

False

Add one pair of parentheses to make each equation true.

Example

$$2 \times (5 + 3) = 16$$

$$4. \quad (4 + 6) \times 3 = 30$$

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$$6. \quad 36 \div (6 - 2) = 9$$

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$$8. \quad (3 \times 4 + 2) \times 5 = 70$$

Riddle: Where do math teachers go on vacation?

Example $4 + 6 \times 3 = 22$, so write T in each box above 22.

$$(R) \quad 6 \times (9 - 4) = \underline{30}$$

$$(E) \quad 36 \div (2 + 7) = \underline{4}$$

$$(U) \quad 64 \div 8 \times 3 = \underline{24}$$

$$(N) \quad 2 \times 9 + 9 = \underline{27}$$

$$(I) \quad (9 - 3) \times 7 = \underline{42}$$

$$(A) \quad (6 + 3) \times 4 = \underline{36}$$

$$(S) \quad 8 \times 4 - 15 = \underline{17}$$

$$(M) \quad 50 - 8 \times 5 = \underline{10}$$

$$(Q) \quad 3 + 27 \div 3 = \underline{12}$$

T	I	M	E	S	S	Q	U	A	R	E
22	42	10	4	17	17	12	24	36	30	4