

COMMUTATIVE PROPERTY OF ADDITION

COMMUTATIVE PROPERTY OF MULTIPLICATION

IN THIS PACKET, DROOPY AND I WILL BE SHOWING YOU THE COMMUTATIVE AND ASSOCIATIVE PROPERTIES.

THE BASIC CONCEPT OF BOTH OF THESE IS THAT THE ORDER DOES NOT MATTER.

THE COMMUTATIVE PROPERTY OF MULTIPLICATION IS THE SAME AS ADDITION. THE ORDER DOES NOT MATTER.

IN OTHER WORDS, WE'RE DOING THE EXACT SAME THING AS BEFORE.

YES, THAT'S TRUE BUT THE PROPERTIES ONLY WORK FOR ADDITION AND MULTIPLICATION.

THAT'S RIGHT DRICK I ALMOST FORGOT, AND THAT'S VERY IMPORTANT TO KNOW.

LET'S FIRST TAKE A LOOK AT THE COMMUTATIVE PROPERTY OF ADDITION.

YES, TAKE A LOOK AT THE PROBLEMS BELOW.

SEE, NO MATTER WHAT YOU MOVE YOU STILL GET THE SAME ANSWER

$4 + 6 = 10$ SAME AS $6 + 4 = 10$

$3 \times 5 = 15$ SAME AS $5 \times 3 = 15$

$4 + 6 = 6 + 4$

CHANGE THE ORDER AND SOLVE (SHOW YOUR WORK)

ALL WE DID WAS CHANGE THE ORDER AND BECAUSE THIS PROBLEM ONLY HAS ADDITION WE STILL GET THE SAME ANSWER.

DO YOU SEE HOW WE STILL GET THE SAME ANSWER NO MATTER WHAT ORDER WE PUT THE NUMBERS IN?

EXAMPLE

CHANGE THE ORDER $2 \times 8 \times 15$ **NOW ITS EASIER TO SOLVE** $2 \times 15 \times 8$

30×8

240

CHANGE THE ORDER AND SOLVE (SHOW YOUR WORK)

EXAMPLE

CHANGE THE ORDER $4 + 9 + 6$ **NOW ITS EASIER TO SOLVE** $4 + 6 + 9$

$10 + 9$

19

- $42 \times 16 \times 2$
- $20 \times 31 \times 4$
- $42 \times 10 \times 6$
- $20 \times 18 \times 9$
- $50 \times 11 \times 5$
- $90 \times 15 \times 4$
- $70 \times 26 \times 12$
- $25 \times 22 \times 10$
- $5 \times 8 \times 7$
- $6 \times 18 \times 15$

- $12 + 5 + 8$
- $16 + 28 + 52$
- $10 + 6 + 2$
- $28 + 60 + 15$
- $22 + 18 + 4$
- $90 + 21 + 1$
- $16 + 5 + 20$
- $39 + 7 + 2$
- $40 + 26 + 8$
- $7 + 5 + 2$

SUBTRACTION

$5 - 2 = 3$ NOT SAME $2 - 5 = -3$

DIVISION

$6 \div 3 = 2$ NOT SAME $3 \div 6 = 1/2$

WHEN YOU SWITCH THE ORDER THE ANSWERS ARE NOT THE SAME.



BEFORE WE MOVE ON TO THE ASSOCIATIVE PROPERTY CHECK OUT THESE TWO EXAMPLES. THEY SHOW THAT THE COMMUTATIVE PROPERTY DOES NOT WORK FOR SUBTRACTION OR DIVISION.

ASSOCIATIVE PROPERTY OF ADDITION

ASSOCIATIVE PROPERTY OF MULTIPLICATION

THE ASSOCIATIVE PROPERTY IS PRETTY MUCH THE SAME THING EXCEPT YOU ARE REGROUPING THE NUMBERS.

WE USE PARENTHESIS () TO GROUP NUMBERS IN MATHEMATICS. CHECK OUT THE PROBLEM.

AS YOU MIGHT HAVE GUESSED, THE ASSOCIATIVE PROPERTY OF MULTIPLICATION IS THE SAME AS ADDITION. YOU CAN REGROUP THE NUMBERS.

EACH PROPERTY IS THE SAME FOR ADDITION AND MULTIPLICATION.

YOU ALWAYS HAVE TO DO THE OPERATIONS INSIDE THE PARENTHESSES FIRST.

YOU CAN MOVE THE PARENTHESSES TO MAKE A DIFFERENT GROUP, WHICH CAN MAKE THE PROBLEM EASIER TO SOLVE.

DID YOU NOTICE WE DID NOT CHANGE THE ORDER, BUT RATHER THE GROUP?

SEE HOW THE PROBLEM IS EASIER TO SOLVE AFTER WE REGROUP THE NUMBERS?

DO NOT CHANGE THE ORDER BUT THE GROUP.

$6 + (4 + 8)$
 $6 + 12$
 18

SAME AS

$(6 + 4) + 8$
 $10 + 8$
 18

$(9 \times 2) \times 5$
 18×5
 90

SAME AS

$9 \times (2 \times 5)$
 9×10
 90

REGROUP AND SOLVE (SHOW YOUR WORK)

REGROUP AND SOLVE (SHOW YOUR WORK)

EXAMPLE

$$(13 + 8) + 2$$

$$13 + (8 + 2)$$

$$13 + 10$$

$$23$$

REWRITE THE PARENTHESSES TO MAKE THE PROBLEM EASIER.

EXAMPLE

$$2 \times (5 \times 14)$$

$$(2 \times 5) \times 14$$

$$10 \times 14$$

$$140$$

REWRITE THE PARENTHESSES TO MAKE THE PROBLEM EASIER.

- $(21 + 8) + 6$
- $16 + (20 + 4)$
- $42 + (11 + 2)$
- $(22 + 15) + 10$
- $40 + (4 + 16)$
- $7 + (16 + 18)$
- $(10 + 23) + 6$
- $25 + (18 + 4)$
- $(17 + 9) + 10$
- $5 + (16 + 9)$

- $(14 \times 12) \times 2$
- $20 \times (3 \times 10)$
- $(16 \times 4) \times 15$
- $25 \times (12 \times 16)$
- $14 \times (13 \times 2)$
- $(16 \times 4) \times 5$
- $(30 \times 7) \times 5$
- $10 \times (6 \times 11)$
- $22 \times (16 \times 18)$
- $10 \times (2 \times 6)$

CHANGE THE ORDER, GROUP, AND SOLVE(SHOW YOUR WORK)

CHANGE THE ORDER, GROUP, AND SOLVE(SHOW YOUR WORK)

EXAMPLE

$$5 + 8 + 5 + 2$$

$$5 + 5 + 8 + 2$$

$$(5 + 5) + (8 + 2)$$

$$10 + 10$$

$$20$$

GROUP THE NUMBERS.

- $6 + 2 + 5 + 8$
- $16 + 8 + 6 + 2$
- $20 + 2 + 17 + 7$
- $10 + 2 + 5 + 3$
- $27 + 22 + 11 + 4$
- $15 + 14 + 12 + 2$

EXAMPLE

$$5 \times 25 \times 2 \times 4$$

$$5 \times 2 \times 25 \times 4$$

$$(5 \times 2) \times (25 \times 4)$$

$$10 \times 100$$

$$1000$$

GROUP THE NUMBERS.

- $10 \times 4 \times 12 \times 20$
- $2 \times 15 \times 18 \times 60$
- $50 \times 5 \times 4 \times 10$
- $7 \times 8 \times 2 \times 11$
- $16 \times 30 \times 4 \times 3$
- $25 \times 15 \times 10 \times 5$