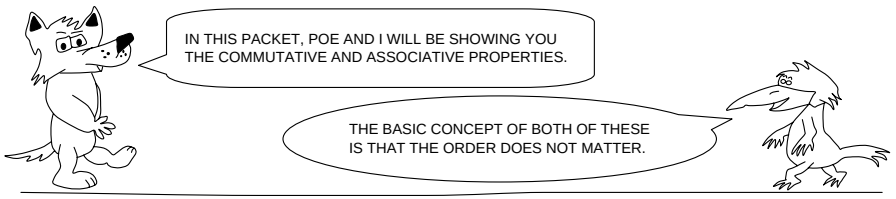
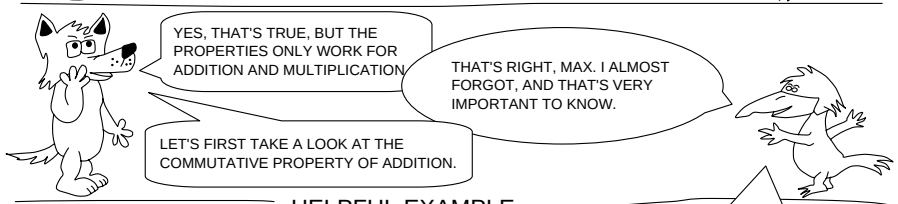
COMMUTATIVE PROPERTY OF ADDITION

ANSWERS - PAGE 1

ORDER DOES NOT MATTER

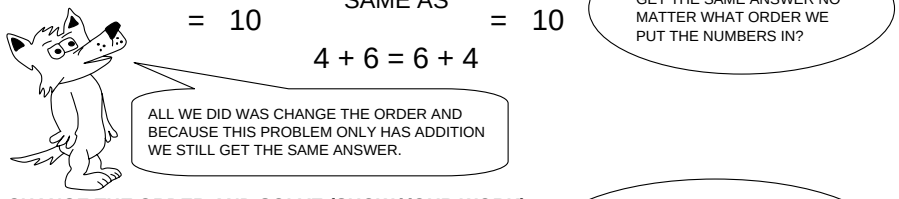




HELPFUL EXAMPLE

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

$4 + 6 = 6 + 4$



CHANGE THE ORDER AND SOLVE (SHOW YOUR WORK).

HELPFUL EXAMPLE

CHANGE THE ORDER.

NOW IT'S EASIER TO SOLVE.

$4 + 9 + 6$

$4 + 6 + 9$

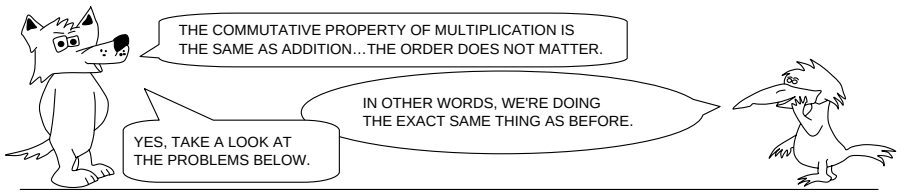
$10 + 9$

19

1. $13 + 8 + 7$ = 28
2. $25 + 9 + 5$ = 39
3. $11 + 12 + 19$ = 42
4. $12 + 10 + 18$ = 40
5. $17 + 15 + 3$ = 35
6. $38 + 16 + 22$ = 72
7. $26 + 37 + 14$ = 77
8. $39 + 26 + 21$ = 66
9. $35 + 38 + 15$ = 88

COMMUTATIVE PROPERTY OF MULTIPLICATION

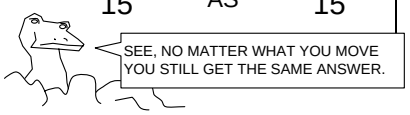
ANSWERS - PAGE 2



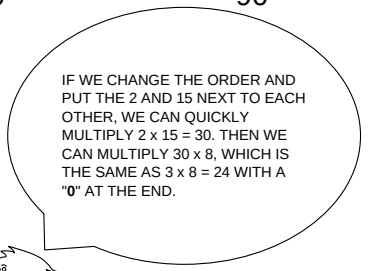
HELPFUL EXAMPLES

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

B. $5 \times 9 \times 2 = 45 \times 2 = 90$ SAME AS $5 \times 2 \times 9 = 10 \times 9 = 90$



CHANGE THE ORDER AND SOLVE (SHOW YOUR WORK).



HELPFUL EXAMPLE

CHANGE THE ORDER.

NOW IT'S EASIER TO SOLVE.

$2 \times 8 \times 15$

$2 \times 15 \times 8$

30×8

240

1. $25 \times 7 \times 4$ = 700
2. $20 \times 11 \times 5$ = 1,100
3. $15 \times 7 \times 2$ = 210
4. $5 \times 9 \times 2$ = 90
5. $5 \times 7 \times 20$ = 700
6. $2 \times 12 \times 50$ = 1,200
7. $50 \times 17 \times 20$ = 17,000
8. $4 \times 23 \times 25$ = 2,300
9. $4 \times 41 \times 25$ = 4,100

SUBTRACTION

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

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

DIVISION

$6 \div 3 = 2$ NOT THE SAME $3 \div 6 = \frac{1}{2}$

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

ANSWERS - PAGE 3

YOU CAN REGROUP

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.

HELPFUL EXAMPLE

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

SAME AS

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

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

YOU CAN MOVE THE PARENTHESES 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?

REGROUP AND SOLVE (SHOW YOUR WORK).

1. $(13 + 8) + 2$
   $= 13 + (8 + 2)$
   $= 13 + 10$
   $= 23$

   REWRITE THE PARENTHESES TO MAKE THE PROBLEM EASIER.

2. $13 + (7 + 9)$
   29

3. $(16 + 21) + 9$
   46

4. $15 + (15 + 4)$
   34

5. $16 + (24 + 3)$
   43

6. $(17 + 10) + 10$
   37

7. $23 + (17 + 15)$
   55

8. $(19 + 22) + 18$
   59

9. $(11 + 25) + 15$
   51

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

10. $5 + 8 + 5 + 2$
    $= 5 + 5 + 8 + 2$ — CHANGE THE ORDER.
    $= (5 + 5) + (8 + 2)$ — GROUP THE NUMBERS.
    $= 10 + 10$ — SOLVE.
    $= 20$

11. $17 + 9 + 1 + 3$
    30

12. $4 + 13 + 16 + 3$
    36

13. $6 + 15 + 14 + 15$
    50

14. $4 + 39 + 16 + 1$
    60

15. $27 + 8 + 7 + 23$
    65

ANSWERS - PAGE 4

ASSOCIATIVE PROPERTY OF MULTIPLICATION

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.

HELPFUL EXAMPLE

$(9 \times 2) \times 5$
18×5
90

SAME AS

$9 \times (2 \times 5)$
9×10
90

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

DO NOT CHANGE THE ORDER BUT THE GROUP.

REGROUP AND SOLVE (SHOW YOUR WORK).

1. $2 \times (5 \times 14)$
   $= (2 \times 5) \times 14$
   $= 10 \times 14$
   $= 140$

   REWRITE THE PARENTHESES TO MAKE THE PROBLEM EASIER.

2. $20 \times (5 \times 9)$
   900

3. $(14 \times 50) \times 2$
   $1{,}400$

4. $(7 \times 15) \times 2$
   210

5. $4 \times (25 \times 12)$
   $1{,}200$

6. $(16 \times 4) \times 5$
   320

7. $5 \times (2 \times 29)$
   290

8. $(18 \times 20) \times 5$
   $1{,}800$

9. $25 \times (4 \times 31)$
   $3{,}100$

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

10. $5 \times 25 \times 2 \times 4$
    $= 5 \times 2 \times 25 \times 4$ — CHANGE THE ORDER.
    $= (5 \times 2) \times (25 \times 4)$ — GROUP THE NUMBERS.
    $= 10 \times 100$ — SOLVE.
    $= 1{,}000$

11. $25 \times 3 \times 4 \times 3$
    900

12. $20 \times 9 \times 5 \times 11$
    $9{,}900$

13. $5 \times 7 \times 2 \times 3$
    210

14. $5 \times 15 \times 2 \times 4$
    600

15. $2 \times 4 \times 50 \times 5$
    $2{,}000$

FINAL PRACTICE *ANSWERS - PAGE 5*

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

ADDITION: COMBINE NUMBERS TO MAKE THE ADDING PROCESS EASIER.

1. 5 + 9 + 4 + 2 + 5 + 8 + 6 + 1
= 5 + 5 + 4 + 6 + 2 + 8 + 1 + 9
= (5 + 5) + (4 + 6) + (2 + 8) + (1 + 9)
= 40

2. 2 + 9 + 5 + 1 + 8 + 3 + 5 + 7
40

3. 3 + 4 + 3 + 5 + 7 + 6 + 7 + 5
40

4. 14 + 2 + 11 + 6 + 5 + 9 + 5 + 8
60

5. 36 + 5 + 37 + 5 + 1 + 4 + 3 + 9
100

6. 5 + 6 + 1 + 2 + 25 + 4 + 59 + 8
110

7. 9 + 4 + 2 + 11 + 3 + 46 + 8 + 7
90

8. 22 + 14 + 3 + 8 + 15 + 6 + 17 + 5
90

MULTIPLICATION: HELPFUL HINTS: 10 x 10 = 100 AND 100 x 10 = 1,000 AND 100 x 100 = 10,000.

9. 5 x 6 x 5 x 3 x 2 x 2
1,800

10. 4 x 2 x 3 x 25 x 5 x 3
9,000

11. 5 x 50 x 7 x 2 x 4 x 2
28,000

12. 2 x 2 x 9 x 5 x 9 x 5
8,100

13. 3 x 25 x 5 x 4 x 4 x 2
12,000

14. 5 x 7 x 2 x 4 x 3 x 5 x 5
21,000

15. 20 x 6 x 25 x 5 x 4 x 2
120,000

16. 4 x 4 x 5 x 25 x 20 x 25
1,000,000