

MATH 3/4: ASSIGNMENT 2

JANUARY 24, 2010

ORDER OF OPERATIONS

1. Fill in the missing numbers:

(a) $22 + 48 \div 6 + 18 \div (9 - 3) = 22 + 48 \div 6 + 18 \div \underline{\hspace{2cm}} = 22 + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(b) $(60 - 44) \times (12 - 32 \div 8) = \underline{\hspace{2cm}} \times (12 - \underline{\hspace{2cm}}) = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(c) $42 + (28 \div 7 + 3 \times 2) \div 5 = 42 + (\underline{\hspace{2cm}} + \underline{\hspace{2cm}}) \div 5 = 42 + \underline{\hspace{2cm}} \div 5 = 42 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2. Find values of numerical expressions:

(a) $36 - 12 \div 3 + 3 =$

(b) $(36 - 12) \div 3 + 3 =$

(c) $36 \times 12 \div 3 \times 3 =$

(d) $36 \times 12 \div (3 \times 3) =$

(e) $36 \div 12 \div 3 \times 3 =$

(f) $36 \div (12 \div 3) \times 3 =$

3. Put signs +, -, ×, ÷ in the equalities so that they become correct.

(a) $56 \quad 18 = 38$

(b) $16 \quad 18 = 34$

(c) $5 \quad 6 \quad 3 = 27$

(d) $5 \quad 2 \quad 9 = 19$

4. Put signs +, -, ×, ÷ and parentheses in the expressions so that the expressions become correct:

(a) $4 \quad 3 \quad 2 \quad 1 = 6$

(b) $4 \quad 3 \quad 2 \quad 1 = 7$

(c) $4 \quad 3 \quad 2 \quad 1 = 8$

(d) $4 \quad 3 \quad 2 \quad 1 = 9$

(e) $4 \quad 3 \quad 2 \quad 1 = 10$

5. Put parentheses in the equalities, so that they become correct. Show why you made this choice.

(a) $7 \times 9 + 12 \div 3 - 2 = 23$

(b) $7 \times 9 + 12 \div 3 - 2 = 75$

6. Using the signs of addition, subtraction, multiplication and division, and the numbers 2, 3, 5 and 6 in any order, get the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 in as many ways as you can. You must use all 4 numbers each time!

7. It is possible to make 100 with 1 and five 5. Place arithmetic signs and brackets in the equality to make it true.

$$1 \quad 5 \quad 5 \quad 5 \quad 5 \quad 5 = 100$$

***8. The Candy game.** Two players are playing in Candy game. They bite in turn from a candy - natural number. Each player can bite only a piece of size 3 or 5. The one who can not bite and leave a piece of candy for the opponent loses. *We discussed first 3 parts of the problem in class.*

(a) Play "Candy" one time starting from 10.

(b) If it is your turn to bite and you have a candy of the size 1, 2, or 3 in front of you - you lose. We call 1,2,3 - losing numbers. What are other losing numbers?

(c) Who is winning if the Candy is 10, the player whose turn is the first or the second?

(d) Try to develop the winning strategy for "Candy". Figure out the "losing" numbers.

(e) Play with your parents or other partners several times (at least 3 times).

(f) Who is winning if the "Candy" is 30, the player whose turn is the first or the second?