Algebra CC
Assignment #3
The Commutative and Associative Properties *EMI 1.3*

1. Combine the expressions below. Replace subtraction by addition of opposites, if needed.

   (a) $7x+3+6x+11$ (b) $12x+10+3+8x$ (c) $10y+12-7y-8-3y$

   (d) $12x-15-3+2x-15x$ (e) $-7x+4-11-7x+7+2x+12x$ (f) $-2x+18+4x-12-6$

2. Use the associative property to rewrite the following. You do NOT need to simplify these.

   (a) $2+(3+4)=$ (b) $5\times(3\times7)=$ (c) $3x-(2x+9x)$

3. Use the commutative property to rewrite the following. You do NOT need to simplify these.

   (a) $6+8+7$ (b) $12x+8x-3x$ (c) $-3y-6y+10y$

4. Sophia and Emily are twin sisters and best friends. They're saving up for concert tickets and agreed to pay for the tickets together when they have enough money. They both created equations to see how fast they were making money and came up with the following expressions:

   Sophia: $35w+55-10w$

   Emily: $28w+75-5w+12$

   where *w* is the number of weeks they have been saving

   (a) Combine their expressions to see how much they are making together.

   (b) Using the expressions see if they will have above $350 in four weeks. If not how much will they be short?

   (c) If their friend Becky also wants to join and is making money according to the expression $50w+25$, create a new expression for the total and see if they will have above $525 for the three of them after four weeks.

Use your calculator to simplify each expression and round your answer to the nearest hundredth:

R1. 29.73 X 14.6 R2. 12.23^2 R3. π X 12

R4. Simplify: $(-6)^2+3(-4)-(5+2)$

R5. There are 36 students in the gym class. The teacher wants to make 9 groups of equal size. How many students are in each group?

R6. John can run 6 miles in 48 minutes. What is his rate in miles per hour?

R7. Sara needs 14 beads to make a bracelet. She invites 6 friends to her house to make bracelets. If she wants to have enough beads for each of her friends and herself to make 3 bracelets, how many beads should she have?

R8. Evaluate the following expression when m = -2: $3m - 2m^2$

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1. (a) 13x + 14
(b) 20x + 13
(c) 4
(d) –x – 18
(e) 0
(f) 2x

2. (a) (2 + 3)+(4)
(b) $(5 \times 3) \times 7$
(c) Can't be done

3. (a) 8 + 6 + 7
(b) 8x + 12x – 3x
(c) Can't be done

4. (a) 48x + 142
(b) No; $16
(c) 98w + 167; yes

R1. 434.06
R2. 149.57
R3. 37.70
R4. 17
R5. 4
R6. 7.5
R7. 294
R8. –14