Homework: Lesson 8 & 9 **Name:** Answers

1] Celina says that each of the following expressions is actually a binomial in disguise:

i. $5abc - 2a^2 + 6abc$ $= 11abc - 2a^2$

ii. $5x^3 \cdot 2x^2 - 10x^4 + 3x^5 + 3x \cdot (-2)x^4$ $= 10x^5 - 10x^4 + 3x^5 - 6x^5$
$= 7x^5 - 10x^4$

iii. $(t+2)^2 - 4t$ $= (t+2)(t+2) - 4t = t^2 + 2t + 2t + 4 - 4t$
$= t^2 + 4$

iv. $5(a-1) - 10(a-1) + 100(a-1)$
$= 5a - 5 - 10a + 10 + 100a - 100 = 95a - 95$

For example, she sees that the expression in (i) is algebraically equivalent to $11abc - 2a^2$, which is indeed a binomial. (She is happy to write this as $11abc + (-2)a^2$, if you prefer.) Is she right about the remaining four expressions?

2] Find the product:

$4x(x^3 - 10)$ $4x^4 - 40x$	$(10w - 1)(10w + 1)$ $100w^2 + 10w - 10w - 1$ $100w^2 - 1$
$(x^2 - x + 1)(x - 1)$ $x^3 - x^2 - x^2 + x + x - 1$ $x^3 - 2x^2 + 2x - 1$	$(w^2 + 1)(w^3 - w + 1)$ $w^5 - w^3 + w^2 + w^3 - w + 1$ $w^5 + w^2 - w + 1$

3] Fill in the blanks by providing an example for each property

Commutative Property of Addition	**Commutative Property of Multiplication**
$a+b=b+a$ Example: $3+7=7+3$	$a \bullet b = b \bullet a$ Example: $2x = x \cdot 2$
Associative Property of Addition $(a+b)+c=a+(b+c)$ Example: $(3+5)+2=3+(5+2)$	**Associative Property of Multiplication** $(a \bullet b) \bullet c = a \bullet (b \bullet c)$ Example: $3 \cdot 5 \cdot 2 = 5 \cdot 2 \cdot 3$
Distributive Property $a(b+c)=ab+ac$ Example: $3(x+5)=3x+15$	

4] Try this tricky flow chart!

Fill in each circle of the following flow diagram with one of the letters: C for Commutative Property (for either addition or multiplication), A for Associative Property (for either addition or multiplication), or D for Distributive Property