Name _____   **Date** _____

8 Algebra CC – Spiral Set A

Part I. Multiple Choice. Place the answers to the questions in the boxes below.

1.	2.	3.	4.	5.	6.	7.

1. If $A = -3x^2 + 5x - 1$ and $B = -6x^2 + 10$, then $A - B$ equals

    (1) $3x^2 + 5x - 11$ (2) $-9x^2 + 5x + 9$

    (3) $3x^2 + 5x + 9$ (4) $-3x^2 - 5x + 11$

2. Which of the following numbers is a rational number but **not** an integer?

    (1) $\sqrt{12}$ (2) -6   (3) $-\dfrac{3}{7}$ (4) $\dfrac{15}{3}$

3. If $y = -\dfrac{1}{4}$ and $z = 8$, what is the value of $\dfrac{1}{2} yz^2$

    (1) 8   (2) 2   (3) -8   (4) 4

4. The statement $3 - 3 = 0$ is an example of which property of real numbers?

    (1) associative   (2) additive inverse   (3) additive identity   (4) distributive

5.   Which expression is equivalent to $(-3x^2)^4$?

    (1) $-3x^6$ (2) $-3x^8$

    (3) $-81x^8$ (4) $81x^8$

6. Given: $A = \sqrt{2}$ $B = 3\sqrt{3}$ $C = \sqrt{8}$
   Which expression results in a rational number?

    (1) $A + B$ (2) AB (3) AC (4) $B + C$

7. Which expression represents the amount of money Joey earns if he mows **x** lawns for $35 each but has to spend $10 on gas for his lawnmower?

    (1) $35 + 10x$ (2) $35 - 10x$ (3) $35x - 10$ (4) $35x + 10$

Part II. Extended Response. Show all necessary work.

8. The diagram below, when completed, shows all possible ways to build equivalent expressions of $3x^2$ using multiplication. The equivalent expressions are connected by labeled segments stating which property of operations, **A** for **Associative Property** and **C** for **Commutative Property**, justifies why the two expressions are equivalent. Fill in the empty circles with **A** or **C** and the empty rectangle with the missing expression to complete the diagram.
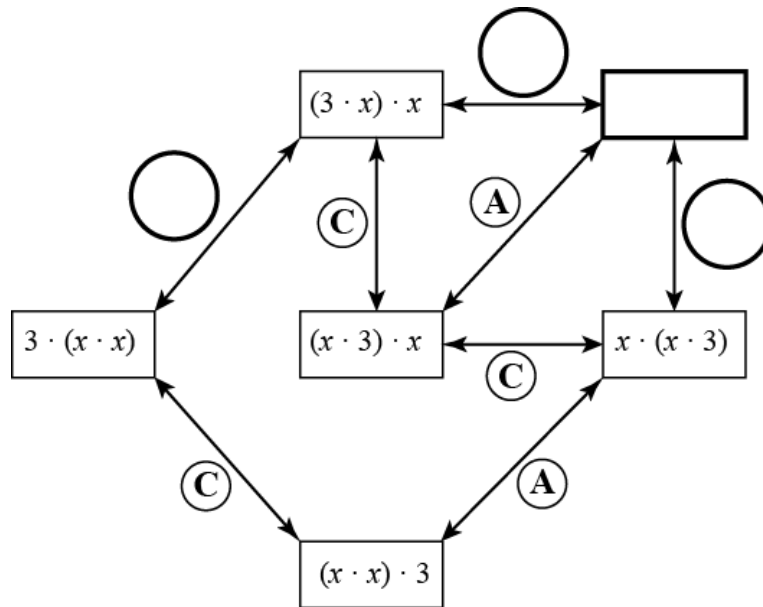
9. Express each number below in simplest radical form.

a) $\sqrt{45}$ b) $\sqrt{80}$

10. A publishing company orders black and blue ink in bulk for its two-color printing press. To keep things simple with its ink supplier, each time it places an order for blue ink, it buys **B** gallons, and each time it places an order for black ink, it buys **K** gallons. Over a one-month period, the company places **m** orders of blue ink and **n** orders of black ink.

Explain what each expression represents below in the context of the problem.

$m + n$

$mB + nK$