8 Algebra CC – Unit 2 PIPS (Persevere in Problem Solving)

Interpreting Expressions

1) Marina burns calories at a rate of 15 calories per minute when running and 6 calories per minute when walking. Suppose she exercises for 60 minutes by running for *r* minutes and walking for the remaining time. The expression **15r + 6(60 – r)** represents the calories burned during the 60-minute session.

A. What does **15r** represent?

B. What does **60 – r** represent?

C. Kara says that **360 + 9r** is an equivalent expression. Do you agree or disagree? Justify your response.

Writing Expressions

2) A. Using an algebraic expression, represent the cost of a dozen balloons plus a 5% tax. Let *b* represent the cost of a dozen balloons.
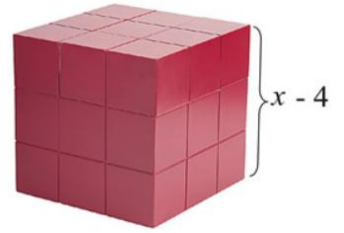
B. How would you change your expression to find the cost of **one** balloon?

C. Find the cost of one balloon including tax if the cost of a dozen balloons is $10. *Show all work.*

Operations with Polynomial Expressions

3) The side of a game cube is represented by **x − 4**, as shown at the right. Express the volume of the cube as a simplified polynomial expression in standard form.
   Helpful Hint: To find the volume of a cube, use the formula $V = s^3$

$x - 4$

4) Represent the length of the missing side of the quadrilateral shown below as a simplified polynomial expression in standard form if the perimeter is **$5x^2 + 2x + 1$**.

$3x^2 - 5x$

?

$2x^2 + x - 1$

$4x^2$