Revised Sample Assessment Questions for End-of-Unit Test on Expressions

Name: _____ **Date:** _____ **Period:** _____

Grade 7: Unit 2 Assessment

Time: Fifty minutes

Tools allowed: Pencil, no calculator

Essential learning standard: I can use properties of operations to generate equivalent expressions (1–7).

- **7.EE.1—**I can apply properties of operations as strategies to factor and expand linear expressions with rational coefficients to generate equivalent expressions.

- **7.EE.2—**I can rewrite expressions in different forms to show how quantities are related.

Write an equivalent expression.

1. $11(s + 9)$

2. $-\frac{2}{5}(x + 25)$

3. Which of the following expressions is equivalent to $24y - 6(8 - 4y) + 52$? Show all your work and justify your reasoning.

    a. $28y + 4$

    b. $48y + 28$

    c. $0y + 4$ or 4

    d. $20y - 4$

    e. $48y + 4$

4. Are the expressions $8x^2 + 3(x^2 + y)$ and $7x^2 + 7y + 4x^2 - 4y$ equivalent? Explain how you know.

5. A student solved the following problem incorrectly. Circle the mistake, explain what the student did wrong, and then solve the problem correctly. Remember to complete all the steps for full credit.

$(4m + 9) - 3(2m - 5)$

$= 4m + 9 - 6m - 15$

$= 4m - 6m + 9 - 15$

$= -2m - 6$

6. In the expression $-\frac{1}{4}x + 3$,

Gianna factored the expression and wrote: $-(\frac{1}{4}x - 3)$

Hannah factored the expression and wrote: $-1(\frac{1}{4}x - 3)$

Both Gianna and Hannah claim to be correct. Do you agree? Why or why not?

7. Which expression is not equivalent? Explain why.

a. Subtract x from $3x - 1$.

b. x more than $3x - 1$

c. $3x - 1$ decreased by x

d. Difference between $3x - 1$ and x

Essential learning standard: I can solve real-life mathematical problems using numerical and algebraic expressions and equations.

7.EE.3—I can solve real-life and mathematical problems using operations with rational numbers in any form.

7.EE.4—I can use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.

8. Photographers Ryan and Alex get paid per photography session. Ryan is paid a set-up fee of $25 plus $10 per hour. Alex is paid a set-up fee of $20 plus $11 per hour.

Write an expression for each photographer. Use *h* to represent hours worked.

Ryan: _____   Alex: _____

    a. Mr. Smith wants to have photos taken of his new baby boy. If the photo session will take 2 hours, who should he choose to take pictures? Explain your reasoning.

    b. If Mr. Smith wants to take pictures for 5 hours, whom should he choose as his photographer, Ryan or Alex? Explain your reasoning.

    c. If the photo session needed to go beyond 5 hours, would you change your answer from Part B? Explain why.

9. Kirsten and her friends are going to the movies. Each person buys a ticket for $8, a medium drink for $2.75, and a large popcorn for $4.25.

    a. Write an expression in simplest form that represents the amount of money each person spends at the movies. Use *x* to represent the total amount of people in the group.

    b. If the total money spent was $60, how many people went to the movies?

10. Use the picture to answer the following questions.

$3a + 4$

4

6

$2a$
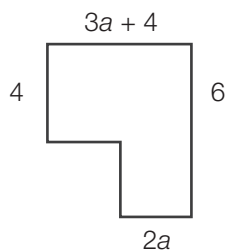
   a. Write an expression, in simplest form, for the perimeter of the rectangle.

11. Javier's family decides to open a pizza place! The following chart shows the prices for a small cheese pizza plus additional toppings.

Toppings	Cost
Cheese	$12.00
Extra cheese	$1.00
Meat	$0.75
Veggies	$0.50

   a. Write an expression to represent the cost of a cheese pizza with v for the veggie toppings. Then, identify how much a customer would spend on a veggie pizza.

   b. Is it possible for someone to order a pizza for exactly $15? Explain your answer.

12. Madison wants to earn $350 for a new iPad mini. She already has $175 saved and has come up with a plan to earn the remaining amount.

   a. How much more money does Madison need to buy her iPad mini? Explain how you figured this out.

   b. Madison tells her parents that she will feed the dog two times each day for $1 each time. She also tells them she will walk the dog every day after school for $3. Write an expression to represent how much Madison will make each day.

   c. How much money will Madison make if she feeds her dog two times each day and walks the dog every day of the school week (Monday through Friday)? Show your work.

   d. How many school weeks must Madison do this to be able to earn the remaining amount? Show your work and explain how you arrived at your answer.

   e. Madison's mom offers Madison a new plan: if Madison walks the dog every day after school and feeds the dog two times each day from now until winter break (5 weeks), she will give Madison $200. Is this a better deal than what Madison offered? Explain your reasoning.

Solve each equation. Show all your work.

13. $x + 5 = -7$

14. $\frac{1}{3}x = 6$

15. $3(x - 2) = -12$