Equivalent Expressions Worksheet

Grade 6 · Common Core 6.EE.A.4

> Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Practice

Builds the skill step by step.

1. Which expression is equivalent to y + y + y?

   A. y^3

   B. 3y

   C. y + 3

   D. 3 + y + y

2. Which expression is equivalent to 2(x + 5)?

   A. 2x + 5

   B. x + 10

   C. 2x + 10

   D. 7x

3. Are 4n + 4 and 4(n + 1) equivalent? Answer yes or no.

4. Are 5 + 3x and 8x equivalent? Answer yes or no.

5. Which expression is equivalent to $6a - 2a$?

   A. $8a$

   B. 4

   C. $4a$

   D. $6 - 2a$

6. Substitute $x = 3$ into both $x + x$ and $2x$. What value does each give?

7. Which expression is NOT equivalent to $12m$?

   A. $12 + m$

   B. $3 \times 4m$

   C. $6m + 6m$

   D. $2(6m)$

8. Are $3(2b)$ and $6b$ equivalent? Answer yes or no.

9. Write an expression equivalent to $5k + 2k$.

10. Are $x + 7$ and $7 + x$ equivalent? Answer yes or no.

ALBERT

Name _____ Date _____

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On Level

Grade-level practice.

1. Are $3(x + 2)$ and $3x + 2$ equivalent? Test with $x = 4$.

2. Which expression is equivalent to $8y + 12$?

   A. $4(2y + 3)$

   B. $4(2y + 12)$

   C. $2(4y + 12)$

   D. $8(y + 12)$

3. Are $2(a + b)$ and $2a + 2b$ equivalent? Explain.

4. Which pair of expressions is equivalent?

   A. $5(n - 1)$ and $5n - 1$

   B. $n - 5$ and $5 - n$

   C. $5(n - 1)$ and $5n - 5$

   D. $5n$ and $n + 5$

5. Write an expression equivalent to $10x - 4 + 2x + 9$ with two terms.

6. Are x^2 and $2x$ equivalent? Test with $x = 3$ and $x = 2$.

7. Which expression is equivalent to $3(2x + 1) + x$?

   A. $6x + 4$

   B. $7x + 1$

   C. $7x + 3$

   D. $9x$

8. Fill in the blank so the expressions are equivalent: $5(x + 3) = 5x + ___$

9. Are $\frac{1}{2}(4y)$ and $2y$ equivalent? Answer yes or no.

10. Which expression is equivalent to $9 - 3x$?

    A. $3(3 - 3x)$

    B. $6x$

    C. $3(3 - x)$

    D. $9(1 - 3x)$

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Challenge

Multi-step and word problems that stretch it.

1. Show that 4(x + 3) − x and 3x + 12 are equivalent by simplifying the first expression.

2. A rectangle has side lengths 4 and n + 2. Which expression does NOT give its perimeter?

   A. 2(n + 2) + 2(4)

   B. 2n + 8

   C. 2n + 12

   D. n + 2 + 4 + n + 2 + 4

3. Leo says 2(x + 4) and 2x + 8 are not equivalent because they give different values when x = 0. Check his claim.

4. Write two different expressions that are equivalent to 6x + 18.

5. For which value of x are x + 4 and 3x equal, even though the expressions are not equivalent?

   A. 4

   B. 2

   C. 0

   D. 1

6. Simplify both expressions and decide whether they are equivalent: $2(3a + b) + a$ and $7a + 2b$.

7. Are $3(2x + 4)$ and $6(x + 2)$ equivalent? Explain.

8. Write an expression with three terms that is equivalent to $5n + 7$.

9. Are $a - b$ and $b - a$ equivalent? Test with $a = 5$ and $b = 2$.

10. A store charges $3 per notebook plus $2 for shipping on each notebook. Mia writes $3n + 2$ for the cost of n notebooks. Write the correct expression and explain her mistake.