

6.EE.3: Worksheet

Solutions

1. Which mathematical property tells us that $13 + 2$ and $2 + 13$ are equivalent?

Commutative property of addition

2. Which mathematical property tells us that $11 + (6 + 9)$ and $(11 + 6) + 9$ are equivalent?

Associative property of addition

3. Write an expression that's equivalent to $6x - 18$? Which mathematical property did you use to create your new expression?

Answers may vary. Most likely, students will answer $6(x - 3)$, which uses the distributive property.

4. Write an expression that is equivalent to $y + 16$.

Answers may vary. Examples of acceptable answers include $y + 1 + 15$ and $y + 8 + 8$.

5. Write two expressions that are equivalent to $(19 - 7)z + z$.

Answers may vary. Examples of acceptable answers include $12z + z$ and $13z$.

6. Write three expressions that are equivalent to $4(w + 3) - 2$.

Answers may vary. Examples of acceptable answers include $4w + 12 - 2$, $4w + 10$, and $2(2w + 5)$.

7. Write three expressions that are equivalent to $a + a + a + a$.

Answers may vary. Examples of acceptable answers include $4a$, $2a + 2a$, $2(a + a)$, and $a + 3a$.

8. Use the commutative and associative properties *only* to rewrite the expression $4(b + 2) + 3(d + 1)$ in three different ways.

Answers may vary. Examples of acceptable answers include $3(b + 1) + 4(d + 2)$, $4(2 + b) + 3(d + 1)$, and $4(b + 2) + 3(1 + d)$.

9. Can you use the distributive property to show that $y + y + y$ and $3y$ are equivalent expressions? Explain.

Yes, we can realize that each term in the expression $y + y + y$ has a coefficient of 1. That means we have $1y + 1y + 1y$. If we use the distributive property in reverse, we can factor out a y to produce the expression $y(1 + 1 + 1)$. We can combine the like terms within the parentheses to make $y(3)$, and use the commutative property of multiplication to get our final answer, $3y$.

10. Come up with your own expression and rewrite it in at least five different ways.

Answers may vary.