

# Commutative and Associative Properties

## Worksheet Answer Key

### *Harry Potter and the Order of the Operations*

- |   |  |
|---|--|
| 1. Use the commutative property of addition to write an equivalent expression to $3x - 2y$ .<br>$-2y + 3x$            | 6. Use the commutative property of multiplication to write an equivalent expression to $20x^2z$ .<br>$20zx^2$  |
| 2. Use the associative property of addition to write an equivalent expression to $7a + (2y - 6)$ .<br>$(7a + 2y) - 6$ | 7. Use the associative property of addition to write an equivalent expression to $3x + (by - c) + (2c + 1)$<br>$(3x + by) + (-c + 2c) + 1 = (3x + by) + c + 1$ |
| 3. Use the commutative property of multiplication to write an equivalent expression to $(2w)(3l)$ .<br>$(3l)(2w)$     | 8. Use the associative property of multiplication to write an equivalent expression to $(8lw)(wx)(xy)$ .<br>$8l(ww)(xx)y = 8lw^2x^2y$                          |
| 4. Use the associative property of multiplication to write an equivalent expression to $2w(yz)$ .<br>$2(wy)z$         | 9. Use the commutative and associate properties to simplify $px + (2y - 3xp) + 3y$ .<br>$-2px + 5y$  |
| 5. Use the commutative property of addition to write an equivalent expression to $7a - 2b + 2$ .<br>$-2b + 7a + 2$    | 10. Use the commutative and associate properties to simplify $(3ax + 6wz) - 2wz + a$ .<br>$3ax + 4wz + a$  |

---

©2012 Shmoop University, Inc. All rights reserved. For classroom use only. Want to print this out for your classroom? Go for it. All other reproduction and distribution is prohibited.

<http://www.shmoop.com/algebra/>  
Shmoop will make you a better lover (of literature, math, life...)