

Number Properties

1. Fill in the blanks of this proof showing that $(w + 5)(w + 2)$ is equivalent to $w^2 + 7w + 10$. Write either commutative property, associative property, or distributive property in each blank.

$$(w + 5)(w + 2) = (w + 5)w + (w + 5) \times 2 \quad \underline{\hspace{10em}}$$

$$= w(w + 5) + (w + 5) \times 2 \quad \underline{\hspace{10em}}$$

$$= w(w + 5) + 2(w + 5) \quad \underline{\hspace{10em}}$$

$$= w^2 + w \times 5 + 2(w + 5) \quad \underline{\hspace{10em}}$$

$$= w^2 + 5w + 2(w + 5) \quad \underline{\hspace{10em}}$$

$$= w^2 + 5w + 2w + 10 \quad \underline{\hspace{10em}}$$

$$= w^2 + (5w + 2w) + 10 \quad \underline{\hspace{10em}}$$

$$= w^2 + 7w + 10$$

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$(w + 5)(w + 2)$	$= (w + 5)w + (w + 5) \times 2$	<u><i>distributive property</i></u>
	$= w(w + 5) + (w + 5) \times 2$	<u><i>commutative property</i></u>
	$= w(w + 5) + 2(w + 5)$	<u><i>commutative property</i></u>
	$= w^2 + w \times 5 + 2(w + 5)$	<u><i>distributive property</i></u>
	$= w^2 + 5w + 2(w + 5)$	<u><i>commutative property</i></u>
	$= w^2 + 5w + 2w + 10$	<u><i>distributive property</i></u>
	$= w^2 + (5w + 2w) + 10$	<u><i>associative property</i></u>
	$= w^2 + 7w + 10$	