

### Darken Group

Blend Mode	Commutativity	Formula
Darken	commutative	$\min(\text{Target}, \text{Blend})$
Multiply	commutative	$\text{Target} * \text{Blend}$
Color Burn	non-commutative	$1 - (1 - \text{Target}) / \text{Blend}$
Linear Burn	commutative	$\text{Target} + \text{Blend} - 1$

### Lighten Group

Blend Mode	Commutativity	Formula
Lighten	commutative	$\max(\text{Target}, \text{Blend})$
Screen	commutative	$1 - (1 - \text{Target}) * (1 - \text{Blend})$
Color Dodge	non-commutative	$\text{Target} / (1 - \text{Blend})$
Linear Dodge	commutative	$\text{Target} + \text{Blend}$

### Contrast Group

Blend Mode	Commutativity	Formula
Overlay	non-commutative	$(\text{Blend} > 0.5) ? (1 - (1 - \text{Target}) / (2 * (\text{Blend} - 0.5)))$ $(\text{Blend} \leq 0.5) ? (\text{Target} / (1 - 2 * \text{Blend}))$
Soft Light	non-commutative	$(\text{Blend} > 0.5) ? (1 - (1 - \text{Target}) * (1 - (\text{Blend} - 0.5)))$ $(\text{Blend} \leq 0.5) ? (\text{Target} * (\text{Blend} + 0.5))$
Hard Light	non-commutative	$(\text{Blend} > 0.5) ? (1 - (1 - \text{Target}) * (1 - 2 * (\text{Blend} - 0.5)))$ $(\text{Blend} \leq 0.5) ? (\text{Target} * (2 * \text{Blend}))$
Vivid Light	non-commutative	$(\text{Blend} > 0.5) ? (1 - (1 - \text{Target}) / (2 * (\text{Blend} - 0.5)))$ $(\text{Blend} \leq 0.5) ? (\text{Target} / (1 - 2 * \text{Blend}))$
Linear Light	non-commutative	$(\text{Blend} > 0.5) ? (\text{Target} + 2 * (\text{Blend} - 0.5))$ $(\text{Blend} \leq 0.5) ? (\text{Target} + 2 * \text{Blend} - 1)$
Pin Light	non-commutative	$(\text{Blend} > 0.5) ? (\max(\text{Target}, 2 * (\text{Blend} - 0.5)))$ $(\text{Blend} \leq 0.5) ? (\min(\text{Target}, 2 * \text{Blend}))$

### Inversion Group

Blend Mode	Commutativity	Formula
Difference	commutative	$\text{Target} - \text{Blend}$
Exclusion	commutative	$0.5 - 2 * (\text{Target} - 0.5) * (\text{Blend} - 0.5)$

### Additional Information

**Overlay:** A combination of multiply and screen. Also the same as Hard Light commuted.

**Soft Light:** A combination of multiply and screen (The formula is only approximate).

**Hard Light:** A combination of multiply and screen. Also the same as Overlay commuted.

**Vivid Light:** A combination of color burn and color dodge.

**Linear Light:** A combination of linear burn and linear dodge.

**Pin Light:** A combination of darken and lighten.



By Art Creative Coder  
(werewolfgsm)

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