

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.



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