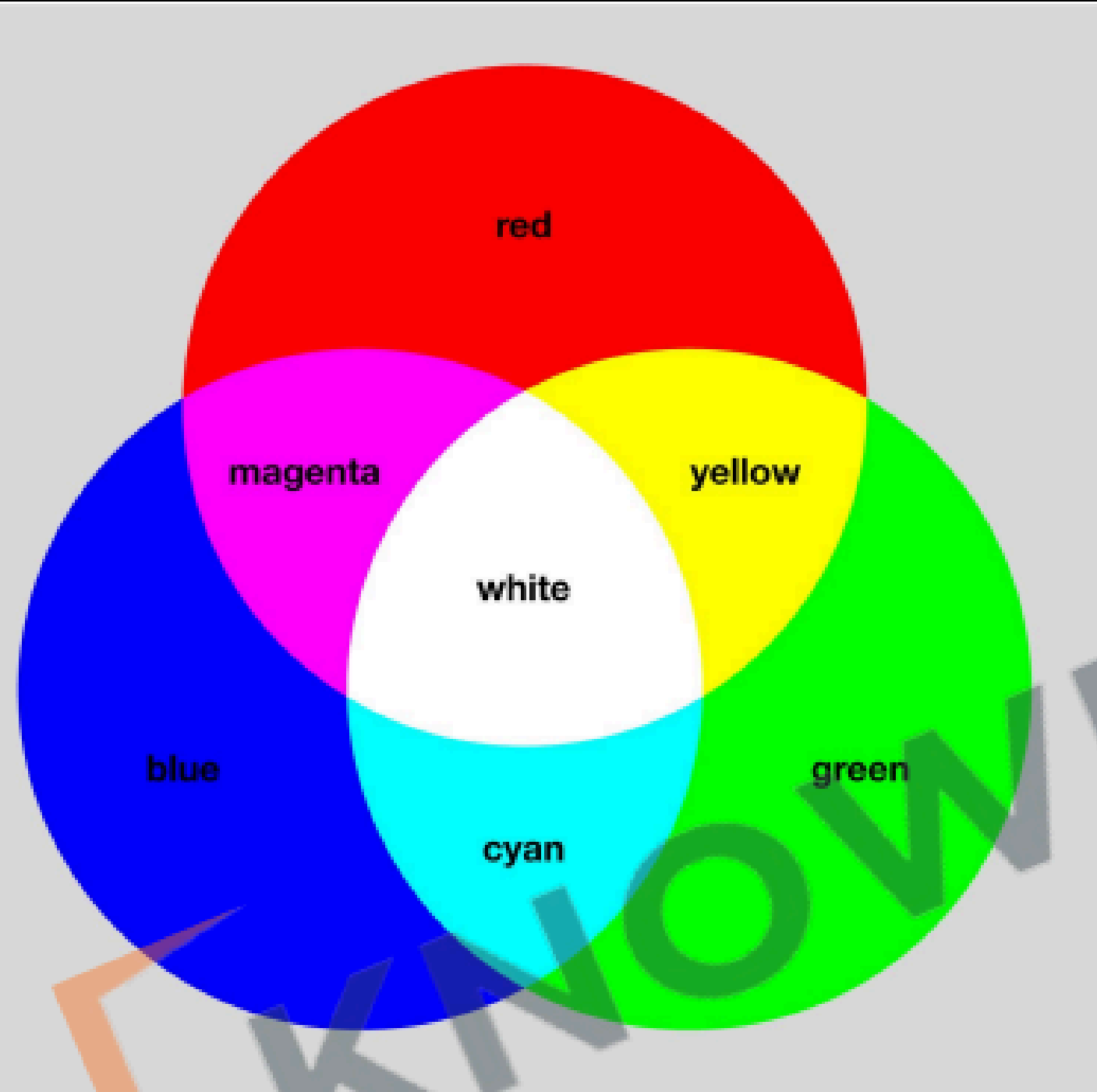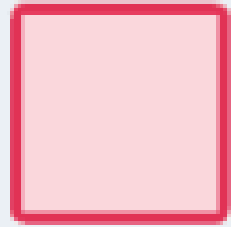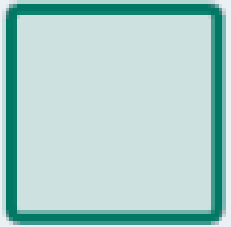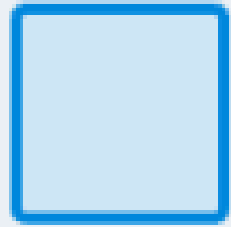# 10. Color System (Color Theory)

- **RGB Model**: Creates colors by mixing Red (R), Green (G), and Blue (B) light sources.
- **Additive Model**: More light means increased brightness.
- **Primary Colors**: R, G, and B are the foundational colors.
- **White & Black**: All combined yield white; absence equals black.
- **Color Depth**: Allows for millions of color variations.

10. Color System (RGB Color Model)

rgb([ ] , [ ] , [ ])

← how much red?

↓ how much green?

↘ how much blue?

- **Three Channels:** Consists of Red (R), Green (G), and Blue (B) channels to create a variety of colors.
- **Syntax:** Utilized as rgb(r, g, b) where r, g, and b are values between 0 and 255.

10. Color System (RGB Color Model)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>RGB Color</title>
</head>
<body>
    <div style="background-color: rgb(255,0,0);">First</div>
    <div style="background-color: rgb(0,255,0);">Second</div>
    <div style="background-color: rgb(0,0,255);">Third</div>
    <div style="background-color: rgb(29, 133, 48);">Fourth</div>
</body>
</html>
```
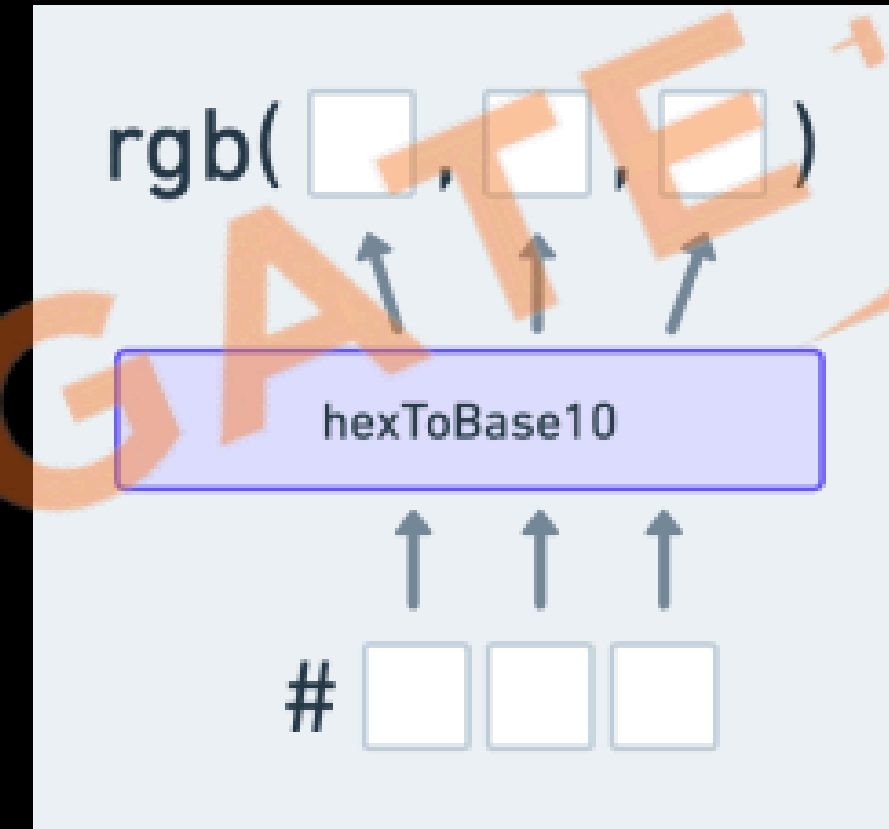
First
Second
Third
Fourth

10. Color System (HEX Color Model)

- **Hexadecimal Codes**: Represents colors using hexadecimal values, consisting of 6 digits combined from numbers and letters (A-F).
- **Syntax**: Written as #RRGGBB
- **Easy Color Matching**: Facilitates easy color matching with graphic design tools and branding colors.
- **Web Standards**: Widely supported and a common standard for defining colors in web design

10. Color System (HEX Color Model)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Hex Color</title>
</head>
<body>
    <div style="background-color: ■#ff0000">First</div>
    <div style="background-color: ■#00ff00">Second</div>
    <div style="background-color: ■#0000ff">Third</div>
    <div style="background-color: ■#402ae9">Fourth</div>
</body>
</html>
```

First

Second

Third

Fourth

10. Color System (Alpha Channel)

- **RGBA**: RGB's extension, includes alpha for opacity control (0-1 range).
- **Transparency Control**: Facilitates the adjustment of transparency levels in colors.
- **Visual Effects**: Enables the creation of visual effects like shadows and overlays.
- **Layering**: Assists in layering elements with varying degrees of visibility.

0.0	rgba(255, 0, 0, 0.0)	fully transparent
0.2	rgba(255, 0, 0, 0.2)	
0.4	rgba(255, 0, 0, 0.4)	
0.6	rgba(255, 0, 0, 0.6)	
0.8	rgba(255, 0, 0, 0.8)	
1.0	rgba(255, 0, 0, 1.0)	fully opaque