Mixing

float t = step(float edge, float x);

float t = smoothstep(float edge0, float edge1, float x);

T out = mix(T value0, T value1, float t);

---

“SmoothPulse” in a Fragment Shader

void main()
{
    float f = fract(uA*vX);
    float t = smoothstep(0.5-uP-uTol, 0.5-uP+uTol, f) - smoothstep(0.5+uP-uTol, 0.5+uP+uTol, f);
    vec3 rgb = vLightIntensity * mix(WHITE, vColor, t);
    gl_FragColor = vec3(rgb, 1.);
}

---

Why Do These Two Curves Match So Closely?

The Taylor Series expansion of \( y = \sin(2x) \) around \( x = 0.5 \) is:

\[
y = \sin\left(\frac{2}{3}\right) + \frac{2}{3} - \frac{2^2}{3^2} + \cdots
\]

which is pretty close to:

\( y = 3x^2 - 2x^3 \)

---

Fun With One

Moral: There are many ways to turn \([ 0. - 1. ]\) into \([ 0. - 1. ]\).

Both go from 0. to 1.
Both have initial and final slopes of 0.
The quintic has initial and final curvatures of 0.