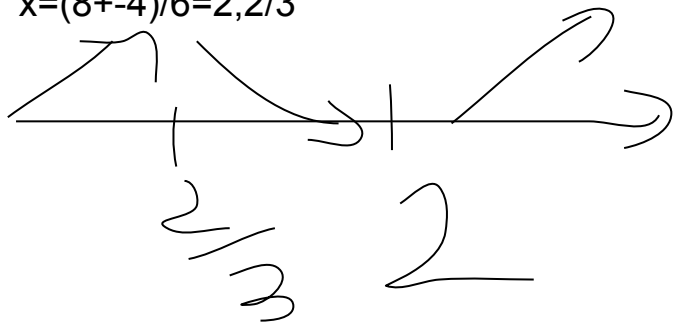


Find the area of the region enclosed by the curve  $y = 6x(x - 2)^2$  and the x-axis. Give the exact answer.

$$\begin{aligned}
 &6x^3 - 24x^2 + 24x \\
 f'(x) &= 18x^2 - 48x + 24 = \\
 &= 3x^2 - 8x + 4 \\
 y(0) &= 4 \\
 3x^2 - 8x + 4 &= 0 \\
 x &= \frac{8 \pm \sqrt{64 - 48}}{6} = 2; \frac{2}{3}
 \end{aligned}$$



$$\begin{aligned}
 S_{[0;2]}(6x^3 - 24x^2 + 24x) &= \\
 &= \frac{3}{2}x^4 - \frac{24}{3}x^3 + 12x^2 \Big|_{[0;2]} = \\
 &24 - 64 + 48 = 8
 \end{aligned}$$

