

GROUP WORK 3, SECTION 4.5
Putting it All Together (Version 1)

Sketch the graph of a function $f(x)$ which has *all* of the following properties:

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|--|---|
| 1. $\lim_{x \rightarrow 2^-} f(x) = -\infty$ | 2. $\lim_{x \rightarrow 2^+} f(x) = \infty$ |
| 3. $\lim_{x \rightarrow -\infty} f(x) = 0$ | 4. $f(-2) = 2$ |
| 5. $f(5) = 1$ | 6. $f(0) = 0$ |
| 7. $f'(x) > 0$ if $x < -2$ or $x > 5$ | 8. $f'(x) < 0$ if $-2 < x < 2$ or $2 < x < 5$ |
| 9. $f'(5) = 0$ | 10. $f'(-2) = 0$ |
| 11. $f''(x) > 0$ if $x < -3$ or $x > 2$ | 12. $f''(x) < 0$ if $-3 < x < 2$ |

