Find the exact area bounded by the functions $f$ and $g$. Include a sketch of the graphs with the region shaded. Use algebra to find any intersections of graphs.

1. $f(x) = x^2 - 4x$ and $g(x) = 0$.

2. $f(x) = 4\sin(4x)$ and $g(x) = 0$.

3. $f(x) = x^2 + 2x + 1$ and $g(x) = x + 1$.

4. $f(x) = -x^2 + 4x + 2$ and $g(x) = x + 2$.