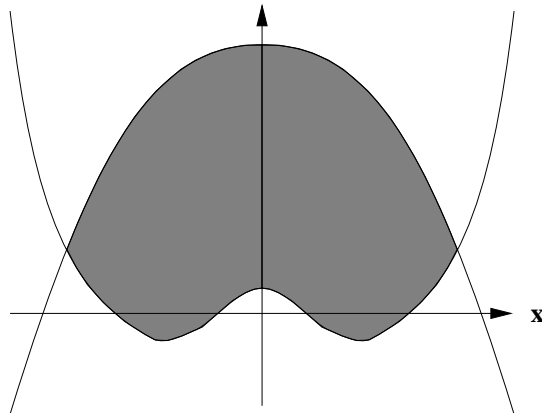
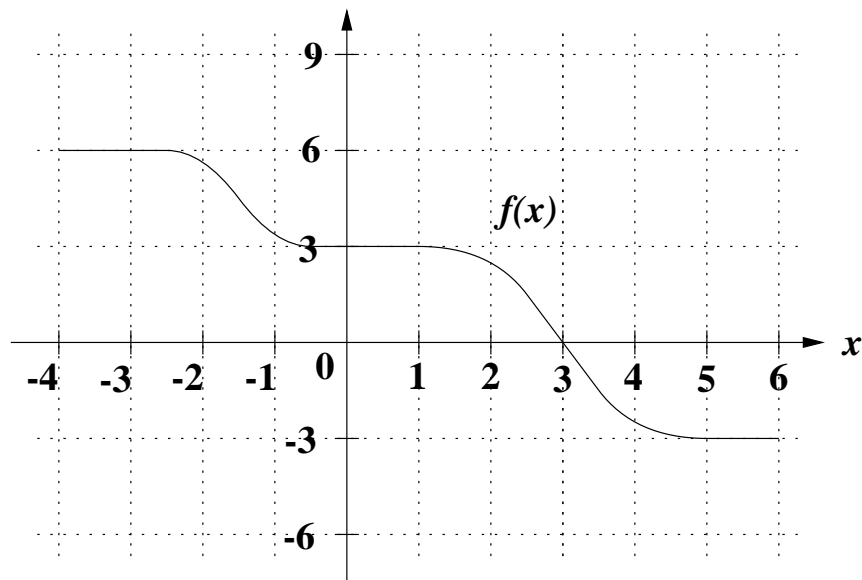


Name _____

1. (4 points) The graphs of $f(x) = x^4 - 7x^2 + 5$ and $g(x) = 86 - 7x^2$ are sketched below and the area between the two curves is shaded in. Find the **exact area** of this shaded region. Your final answer should be correct to one place after the decimal point and you must show sufficient work to justify your answer.





2. (3 points) The graph of $f(x)$ is shown above. The definite integral, $\int_{-4}^6 f(x) dx$, is equal in value to one of the choices below. Which one? Circle your answer.

- (a) -34.5
- (b) -27.5
- (c) -19.5
- (d) -11.5
- (e) -4.5
- (f) 0
- (g) 4.5
- (h) 11.5
- (i) 19.5
- (j) 27.5
- (k) 34.5

3. (3 points) Set up, but do not evaluate, the definite integral needed to compute the area bounded below by the x -axis and above by the graph of $y = 30 - e^x$ between $x = 0$ and the x -intercept.