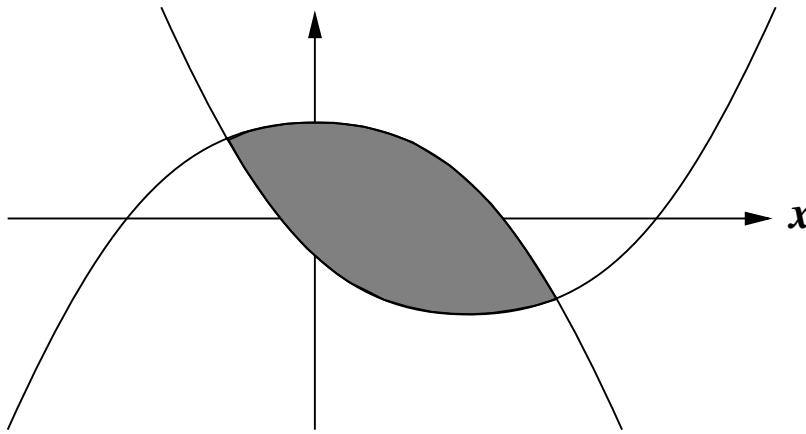


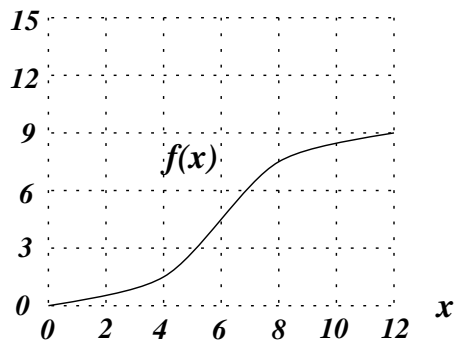
Name _____

You must show all of your work to receive credit for a correct answer. You are not allowed to borrow another student's calculator during the quiz.

1. (4 points) The graphs of $f(x) = x^2 - 8x - 4$ and $g(x) = 20 - x^2$ are sketched below and the area between the two curves is shaded in. Find the exact area of this shaded region. Your final answer must be a number.

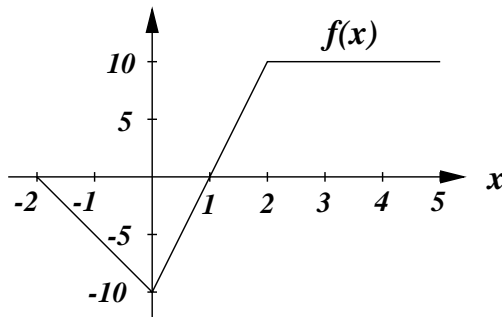


2. (3 points) One of the ten choices below gives the exact value of the definite integral $\int_0^{12} f(x) dx$. Circle the correct choice.



- (a) 0 (b) 18 (c) 36 (d) 54 (e) 72
 (f) 90 (g) 108 (h) 126 (i) 144 (j) 162

3. (3 points) One of the ten choices below gives the exact value of the definite integral $\int_{-2}^5 f(x) dx$. Circle the correct choice.



- (a) -5 (b) 0 (c) 5 (d) 10 (e) 15
 (f) 20 (g) 25 (h) 30 (i) 35 (j) 40