**Integration with Piece-Wise Defined Functions**

Name_____
Period_____

Use your knowledge of the following functions to find the definite integral asked for. Also see if an answer exists for the indefinite integral. Feel free to use the TI-Nspire to help support your answers.

1. $f(x) = \begin{cases} x, & x \leq 0 \\ x^2, & x > 0 \end{cases}$

a) $\displaystyle\int_{-2}^{4} f(x)dx =$

b) $\displaystyle\int f(x)dx =$

2. $f(x) = \begin{cases} x-3, & x \leq 1 \\ -x, & x > 1 \end{cases}$

a) $\displaystyle\int_{-2}^{4} f(x)dx = .$

b) $\displaystyle\int f(x)dx =$

3. $f(x) = \begin{cases} x^3+1, & x \leq 0 \\ e^x, & x > 0 \end{cases}$

a) $\displaystyle\int_{-2}^{4} f(x)dx =$

b) $\displaystyle\int f(x)dx =$

4. $f(x) = \begin{cases} |x|, & x \leq 3 \\ \cos x, & x > 3 \end{cases}$

a) $\displaystyle\int_{-2}^{7} f(x)dx =$

b) $\displaystyle\int f(x)dx =$

5. $f(x) = \begin{cases} x^2, & x \le 1 \\ 1, & 1 < x \le 3 \\ x-2, & x > 3 \end{cases}$

a) $\displaystyle\int_{-2}^{7} f(x)dx =$

b) $\displaystyle\int f(x)dx =$