

Math 392 Formula Check after quiz 7

March 13, 2019

Name: \_\_\_\_\_

Instructions: No calculators! Answer all problems in the space provided! Do your rough work on scrap paper.

1. Define the following:

$$(a) \int_C f(x, y) ds = \underline{\hspace{15em}}$$

$$(b) \int_C \vec{F} \cdot d\vec{r} = \underline{\hspace{15em}}$$

$$(c) \int_C f(x, y) dx = \underline{\hspace{15em}}$$

(where  $C$  is a smooth curve parametrized by  $\vec{r}(t) = \langle x(t), y(t) \rangle$ . No shorthand, flesh out full definition.)

2. State the equation in the fundamental theorem for line integrals: \_\_\_\_\_

3. State the equation in Green's Theorem: \_\_\_\_\_

4. What does it mean to say " $\vec{F}$  is conservative"? \_\_\_\_\_

5. Let  $\vec{F} = \langle P(x, y), Q(x, y) \rangle$  be defined on an open, simply connected domain  $D$ . Suppose  $P$  and  $Q$  have continuous first partial derivatives on  $D$ . What equation would you use to check if  $\vec{F}$  is conservative? \_\_\_\_\_

6. Let  $\vec{F} = \langle P(x, y), Q(x, y), R(x, y) \rangle$  be defined on an open, simply connected domain  $D$ . Suppose  $P$ ,  $Q$ , and  $R$  have continuous first partial derivatives on  $D$ . What equation would you use to check if  $\vec{F}$  is conservative? \_\_\_\_\_