

MATH 2242-090 — Spring 2016 — Dr. Clontz — Quiz 10
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Name: _____

- Each quiz question is labeled with its worth toward your total quiz grade for the semester.
- On multiple choice problems, you do not need to show your work. No partial credit will be given.
- On full response problems, show all of your work and give a complete solution. When in doubt, don't skip any steps. Partial credit will be given at the discretion of the professor.
- This quiz is open notes and open book.
- This quiz is due at the end of class. Quizzes submitted over one minute late will be penalized by 50%.

1. (10 points) Which of these is a parametrization of the line segment joining the points $(1, 0, 3)$ and $(2, -2, 5)$?
- ☐ $\mathbf{r}(t) = (1 + t, -2t, 3 + 2t); 0 \leq t \leq 1$
 - ☐ $\mathbf{r}(t) = (\cos t, 2 \sin t, 3 \cos t); 0 \leq t \leq 2\pi$
 - ☐ $\mathbf{r}(t) = (t^2, -2e^t, 3 + 5t); -1 \leq t \leq 1$
 - ☐ $\mathbf{r}(t) = (\cos t, -2 \sin t, 3 \cos t); 0 \leq t \leq \pi$
 - ☐ None of these.
2. (10 points) Prove $\int_C \sqrt{y} - x + 3 \, ds = \frac{\sqrt{125}-1}{6}$, where C is parametrized by the vector function $\mathbf{r}(t) = (3 - t, t^2)$ for $t \in [0, 1]$.

3. (10 points) Calculate the work done by the force $\mathbf{F} = (y, z + x, -2x)$ around the curve parametrized by the vector function $\mathbf{r}(t) = (\sin t, 2 \sin t, \cos t)$ for $t \in [0, \pi]$.