Quiz 7 • Graded

Student

Colin Cano

Total Points

6 / 10 pts

Question 1

Death Star 2 / 4 pts

Elements are incorrect. Select all that apply.

✓ - 1 pt Student does not correctly plug in r=60*(.5)=30.



ightharpoonup – 1 pt Student does not correctly plug in $rac{dr}{dt}=60.$



 $oxed{6}$ This last r should be r'

Question 2

Zombie Breakout 2 / 3 pts

Elements are incorrect. Select all that apply.

✓ **-1 pt** Student does not correctly solve for r using $10e^{r1} = 1000$



Question 3

Related Rates 2 / 3 pts

Elements are incorrect. Select all that apply.

🗸 – 0.5 pts The student does not plug in $rac{dy}{dt}=4$ correctly, or does not plug in (x,y)=(1,2) correctly.



✓ - 0.5 pts An algebra mistake was made.



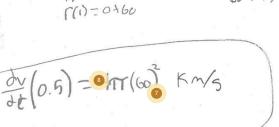
- $oxed{2}$ This is an implicit equation $yx^2=2$. It is not a function f(x)=...
- 4 You missed $rac{dx}{dt}$ here, although it is in the next line

Name: Colin Cano

Student ID: _____

1. A moon-sized battle station explodes in outer space. The spherical explosion of shrapnel travels at $60\frac{\mathrm{km}}{\mathrm{sec}}$. How fast is the volume of the sphere increasing after .5 seconds? You may leave your answer in terms of π . Hint: The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$.

dv = 4772.6



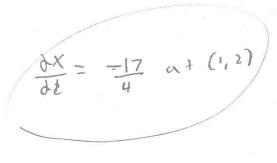
2. In a crowded city, an initial population of 10 zombies escapes from a secret lab and begins infecting humans. Their population grows to 1,000 zombies in just 1 hour. The zombies infect people at a rate proportional to the size of the zombie population. Find an expression for the number of zombies after t hours.

for P₆

$$P_{6}=10$$
 $P_{1}=1000$
 $P(t)=P_{8}\cdot e^{kt}$
 $P(t)=P_{8}\cdot e^{kt}$

3. If $yx^2 = 2$ and $\frac{dy}{dt} = 4$, find $\frac{dx}{dt}$ when (x, y) = (1, 2).

(a) = Y(x) · X(x) + Y(x) · 2x(x) = 0 4 · 4 + 1 · 4 = 0 4 · 4 + 1 · 4 = 0 4 · 4 + 1 · 4 = 0



SCRATCH PAPER