

Standard N02 FORM A

(Finding Definite Integrals: The Basics)

APCalculus - Rentz - Content Assessment (CON) - 30 minutes

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|-------------|--|--|
| START TIME: | Last Name _____ | SCORE 0 _____ 3 /11 pts % |
| | Name Called By _____ | |
| | Period: (circle one) BLUE PD 4 | |
| STOP TIME: | Class: 2019(SR) 2020(JR) 2021(SOPH) | |
| | Date: _____ | |

NO CALCULATOR FOR THIS STANDARD!

Show your work!

Honor Code Reminders:

Do your own work.

No collaboration.

Use only the technology approved by the teacher for this assessment.

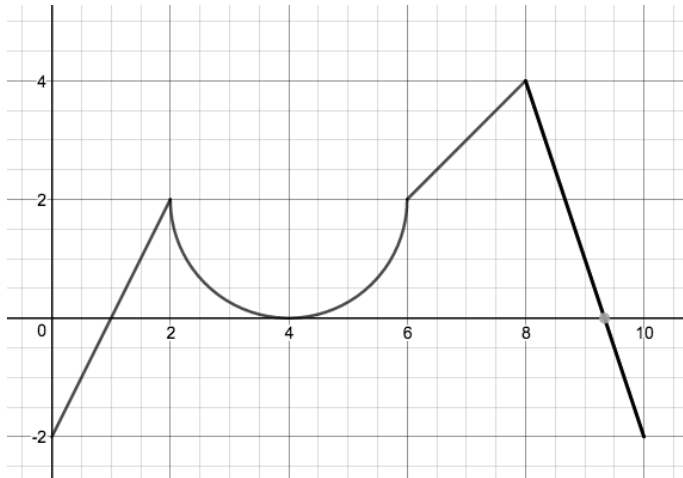
Do not discuss this assessment with other students prior to one week after the assessment UNLESS the teacher discusses details in class before that time.

Do your best!

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1. Use the graph of $y = f(x)$ below to find the requested values. Show work.

Note: Graph consists of a semicircle and 3 line segments.



(a) [+1 pt] $\int_0^2 f(x)dx =$

(b) [+1 pt] $\int_6^8 f(x)dx$

(c) [+1 pt] $\int_2^8 f(x)dx$

(d) [+1 pt] $\int_8^{10} f(x)dx$

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2. $\int_a^b f(x)dx = 55.$
 $\int_a^b g(x)dx = 20.$

Find each of the following exactly. Show work to justify results.

(a) [+1 pt] $\int_a^b (f(x) - g(x))dx$

(b) [+1 pt] $\int_a^b (-2g(x))dx$

(c) [+1 pt] $\int_b^a (f(x))dx$

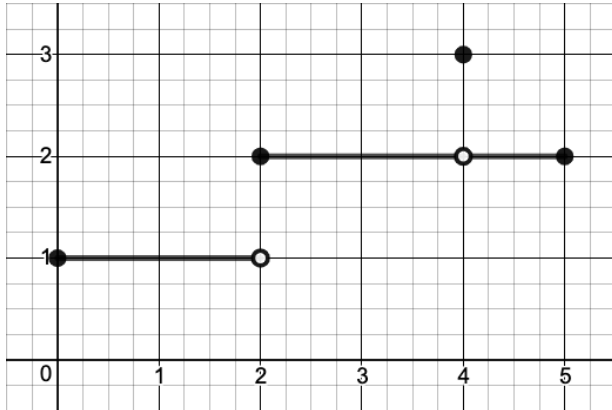
(d) [+1 pt] If c is any real number, $\int_a^c (g(x))dx + \int_c^b (g(x))dx.$

(e) [+1 pt] $\int_a^b (2f(x) + 3g(x))dx$

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3. [+1 pt] Evaluate, using the graph of $y = f(x)$ below: $\int_0^5 f(x)dx$ if it exists.

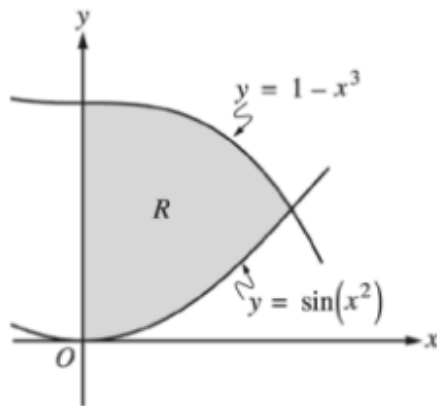
(If the definite integral does not exist, write **DNE**.)



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4. [+1 pt] Write the definite integral that provides the answer to the following question:
(Since you do not have access to your calculator for this assessment,
you do not need to evaluate your definite integral.)

Intersection Point for the two graphs is at (0.76497226, 0.55235157) in Quadrant I.



Let R be the shaded region in the first quadrant enclosed by the y -axis and the graphs of $y = 1 - x^3$ and $y = \sin(x^2)$, as shown in the figure above.

(a) Find the area of R .