

Quiz 2 (AM)

Key

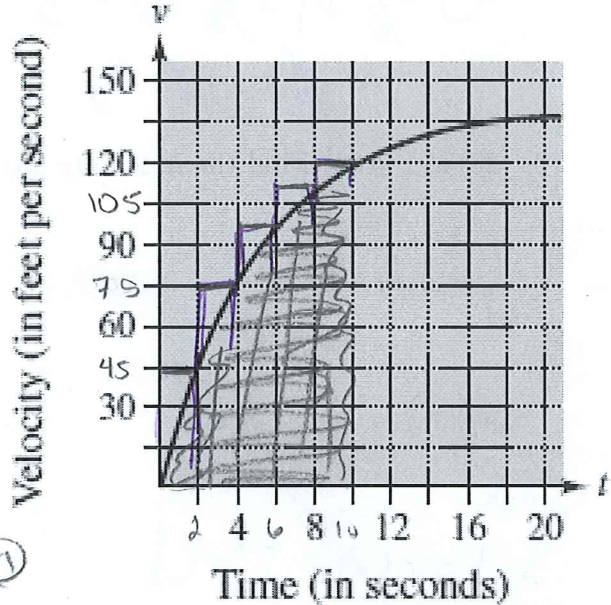
Show *all* your work. Reasonable supporting work must be shown to earn credit. There are *two* sides to this quiz.

1. The graph show the velocity, in feet per second, of a car accelerating from rest.

(a) [1] Shade the area on the graph that corresponds to the distance the car traveled in the first 10 seconds.

(b) [2] If you are working for the car company's sales department, would you approximate the distance the car traveled in the first 10 seconds with left or right end points? Explain your answer.

We want to advertise our acceleration to the public (1)
 So use right end points (1)



(c) [2] (WebHW3 #11) Use the graph to estimate the distance the car travels in the first 10 seconds with five rectangles.

Right hand approx $2 \cdot 45 + 2 \cdot 75 + 2 \cdot 97 + 2 \cdot 112 + 2 \cdot 120 = 998 \text{ ft}$

OR

left-hand approx $2 \cdot 0 + 2 \cdot 45 + 2 \cdot 75 + 2 \cdot 97 + 2 \cdot 112 = 658 \text{ ft}$

use five rectangles (1.5)
 base height (1.5)
 got it (1.5) right rect (1.5)

2. [2] (summationActivity #1) Expand $\sum_{i=0}^5 \frac{(-1)^i \cdot i}{2}$

$i=0$ $i=1$ $i=2$ $i=3$ $i=4$ $i=5$ | index (blank) $+0.5$

$$\frac{(-1)^0 \cdot 0}{2} + \frac{(-1)^1 \cdot (1)}{2} + \frac{(-1)^2 \cdot (2)}{2} + \frac{(-1)^3 \cdot (3)}{2} + \frac{(-1)^4 \cdot (4)}{2} + \frac{(-1)^5 \cdot (5)}{2}$$

$$0 - \frac{1}{2} + 1 - \frac{3}{2} + 2 - \frac{5}{2}$$

$$-\cancel{1} + 1 + \cancel{1} - \frac{5}{2} = -\frac{3}{2} \text{ or } -1.5$$

power -1 $(+0.5)$
 mult by i $(+1.5)$
 terms are correct $(+1.5)$

3. [3] (§5.1 #30) Find the indefinite integral for $\int \cos(x) + 3^x dx$

$$\int \cos(x) + 3^x dx$$

$$= \sin(x) + 3^x + C$$

Check:

$$\frac{d}{dx} [\sin(x) + 3^x + C]$$

$$= \cos(x) + 3^x \ln 3 + 0$$

rule $+0.5$

$$= \sin(x) + \frac{1}{\ln 3} \cdot 3^x + C$$

Check:

$$\frac{d}{dx} [\sin(x) + \frac{1}{\ln 3} \cdot 3^x + C]$$

$$= \cos(x) + \frac{1}{\ln 3} \cdot \ln 3 \cdot 3^x + 0$$

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