1. The average value of f on $[a, b]$ is...

   ☐ $\int_a^b f\,dx$

   ☐ $(b-a)\int_a^b f\,dx$

   ☐ $\dfrac{1}{b-a}\int_a^b f\,dx$

   ☐ $f(b)-f(a)$

2. To recover position from velocity you...

   ☐ differentiate velocity

   ☐ square velocity

   ☐ take the reciprocal

   ☐ integrate velocity

3. The applied accumulation relationship is: final value =...

   ☐ initial value $+\int_a^b R\,dt$

   ☐ initial value $\times\int_a^b R\,dt$

   ☐ $R(b)-R(a)$

   ☐ $\int_a^b R\,dt$

4. The area between an upper curve f and lower curve g on $[a, b]$ is...

   ☐ $\int_a^b (f\cdot g)\,dx$

   ☐ $\int_a^b f\,dx$

   ☐ $\int_a^b (g-f)\,dx$

   ☐ $\int_a^b (f-g)\,dx$

5. With horizontal slices, the area is $\int_c^d (\ ?\ )\,dy$ where...

   ☐ top minus bottom

   ☐ leftmost minus rightmost

   ☐ the product of the curves

   ☐ rightmost minus leftmost

6. Base under $y=\sqrt{x}$ on $[0, 4]$, square cross sections: $A(x)=x$. Find $V=\int_0^4 x\,dx$.

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_____

7. For a semicircle whose diameter is the base s, you must halve s to get the radius before squaring.

   ☐ True ☐ False

8. In the disc method, the radius R is the _____ from the curve to the axis of revolution.

   _____

9. When revolving about $y=-1$, you can still use radius $R=f(x)$.

   ☐ True ☐ False

10. Even about a shifted axis, the washer integrand is R^2-r^2, not $(R-r)^2$.

    ☐ True ☐ False

1. $\dfrac{1}{b-a}\int_a^b f\,dx$

   Total divided by width.

2. **integrate velocity**

   Position = initial + $\int v\,dt$.

3. **initial value** + $\int_a^b R\,dt$

   Final = initial + accumulated change.

4. $\int_a^b (f-g)\,dx$

   Upper minus lower, integrated.

5. **rightmost minus leftmost**

   Horizontal strips: right curve minus left curve.

6. **8**

   $\left[\frac{x^2}{2}\right]_0^4 = 8$.

7. **True**

   Radius = $s/2$; forgetting this is a common error.

8. **distance**

   Radius = distance to the axis.

9. **False**

   You must shift: $R = f(x) + 1$.

10. **True**

    Always square each radius before subtracting.

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