AP Calculus AB Trapezoidal Rule

In exercises 1-5, use the Trapezoidal Rule to approximate the value of the definite integral for the given value of n subintervals. Round your answer to 4 decimal places when necessary.

1) $\int_0^2 x^2\,dx,\ n = 4$ 2.75

2) $\int_0^2 x^3\,dx,\ n = 4$ 4.25

3) $\int_0^2 x^3\,dx,\ n = 8$ 4.0625

4) $\int_4^9 \sqrt{x}\,dx,\ n = 8$ 12.6640

5) $\int_1^2 \frac{1}{(x+1)^2}\,dx,\ n = 4$ .1676

In exercises 6-10, use the Trapezoidal Rule with n = 4 subintervals to approximate the value of the definite integral.

6) $\int_0^2 \sqrt{1+x^3}\,dx$ 3.2833

7) $\int_0^1 \sqrt{x}\sqrt{1-x}\,dx$ .3415

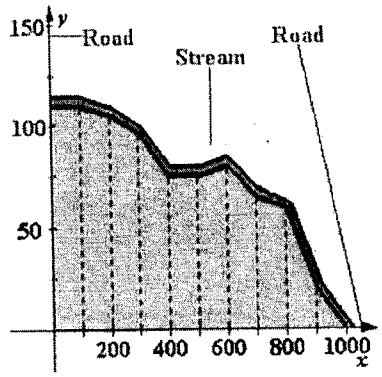
8) $\int_0^{\sqrt{\pi/2}} \cos x^2\,dx$ .9567

9) $\int_1^{1.1} \sin x^2\,dx$ .0891

10) $\int_0^{\pi/4} x\tan x\,dx$ .1940

11) Use the Trapezoidal Rule to estimate the number of square meters of land in a lot where x and y are measured in meters, as shown in the figure. The land is bounded by a stream and two straight roads that meet at right angles.

X	Y
0	125
100	125
200	120
300	112
400	90
500	90
600	95
700	88
800	75
900	35
1000	0



89250 m^2

12) Use the Trapezoidal Rule to estimate $\int_{2.1}^{3.6} y\,dx$

x	2.1	2.4	2.7	3.0	3.3	3.6
y	3.2	2.7	2.9	3.5	4.1	5.2

5.22