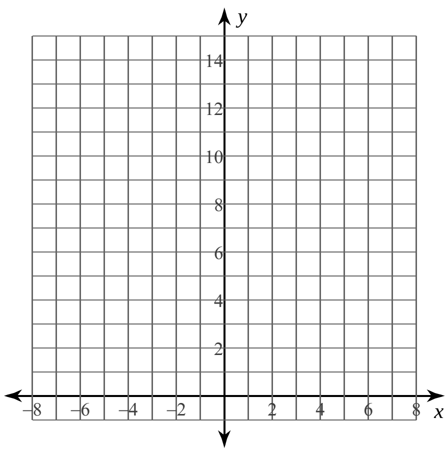
Calculus Practice: Using Definite Integrals to Calculate Area 1a

For each problem, find the area under the curve over the given interval. You may use the provided graph to sketch the curve and shade the region under the curve.

1) $y = x^2 + 8x + 17$; $[-5, -1]$



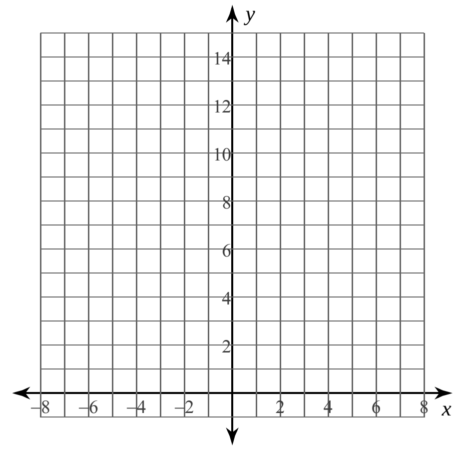
A) $\frac{41}{3} \approx 13.667$

B) $\frac{77}{6} \approx 12.833$

C) $\frac{46}{3} \approx 15.333$

D) $\frac{40}{3} \approx 13.333$

2) $y = 2\sqrt{x}$; $[2, 5]$



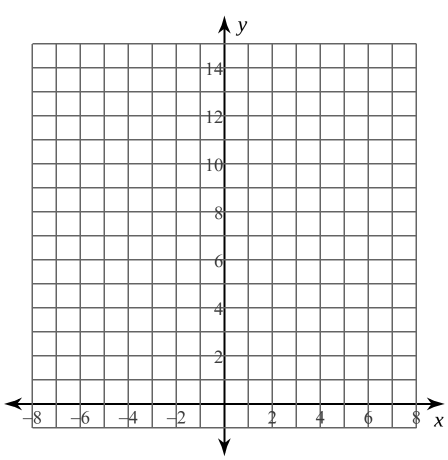
A) $\frac{20\sqrt{5}}{3} - \frac{8\sqrt{2}}{3} + \frac{1}{2} \approx 11.636$

B) $-2 + \frac{20\sqrt{5}}{3} - \frac{8\sqrt{2}}{3} \approx 9.136$

C) $2 + \frac{20\sqrt{5}}{3} - \frac{8\sqrt{2}}{3} \approx 13.136$

D) $\frac{4\left(5\sqrt{5} - 2\sqrt{2}\right)}{3} \approx 11.136$

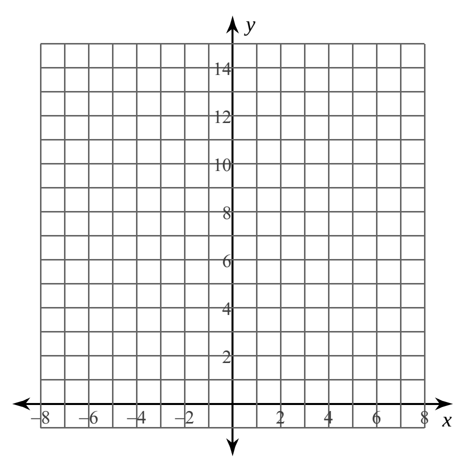
3) $y = \frac{1}{x^2}$; $[1, 2]$



A) $\frac{3}{2} = 1.5$ B) $\frac{5}{6} \approx 0.833$

C) $\frac{1}{2} = 0.5$ D) 5

4) $y = -\frac{5}{x}$; $[-6, -2]$



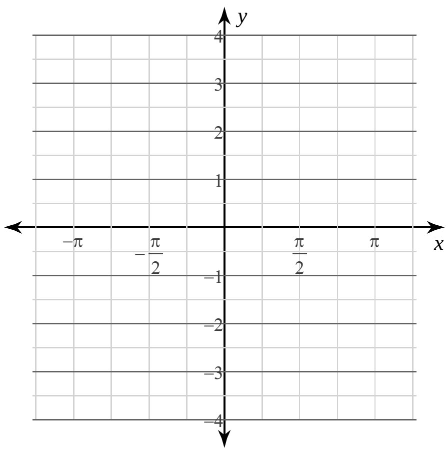
A) $-5\ln 2 + 5\ln 6 + \frac{1}{2} \approx 5.993$

B) $-5\ln 2 + 5\ln 6 - \frac{1}{2} \approx 4.993$

C) $-5\ln 2 + 5\ln 6 \approx 5.493$

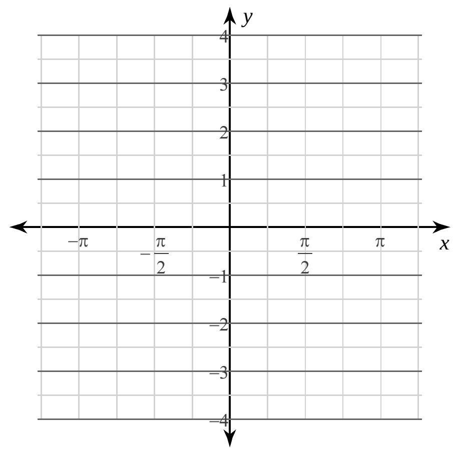
D) $-10\ln 2 + 10\ln 6 \approx 10.986$

5) $y = 2\cos x$; $[-\frac{\pi}{2}, -\frac{\pi}{6}]$



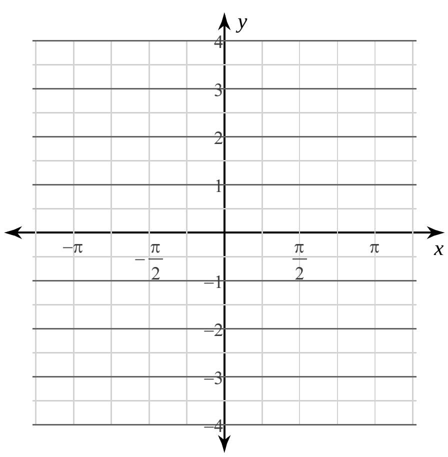
A) 1
B) 2
C) $-2 + 2\sqrt{2} \approx 0.828$
D) $\frac{5}{4} = 1.25$

6) $y = \sec x\tan x$; $[\frac{5\pi}{6}, \pi]$



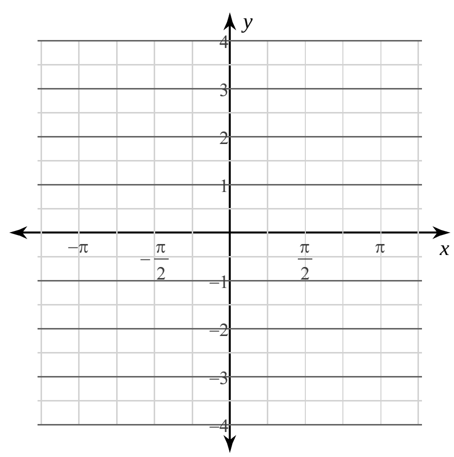
A) 4
B) $-3 + 2\sqrt{3} \approx 0.464$
C) $\frac{-3 + 2\sqrt{3}}{3} \approx 0.155$
D) 3

7) $y = 2\sin x$; $[\frac{3\pi}{4}, \frac{5\pi}{6}]$



A) $-\sqrt{3} + \sqrt{2} + 1 \approx 0.682$
B) $\sqrt{3} - \sqrt{2} + 1 \approx 1.318$
C) $\sqrt{3} - \sqrt{2} \approx 0.318$
D) 5

8) $y = \csc x\cot x$; $[-\frac{\pi}{2}, -\frac{\pi}{3}]$



A) $-3 + 2\sqrt{3} \approx 0.464$
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C) 8
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Name______________________________

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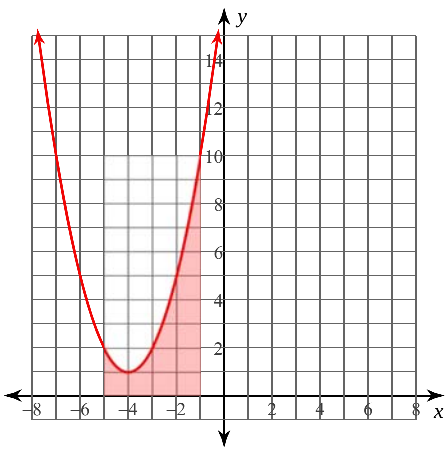

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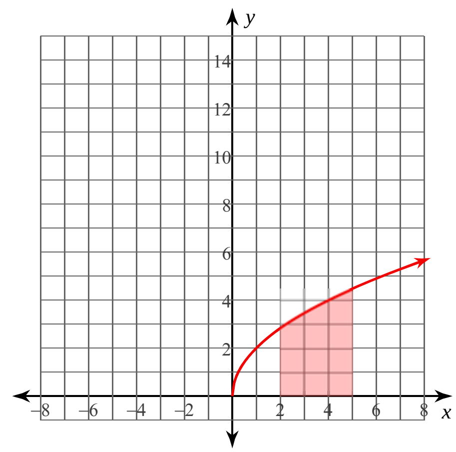

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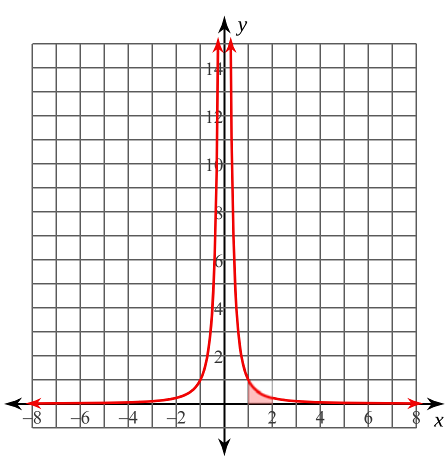

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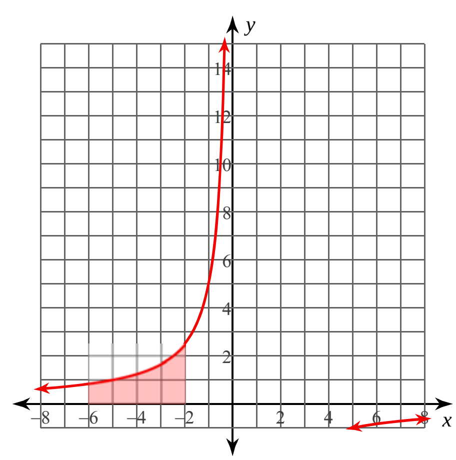

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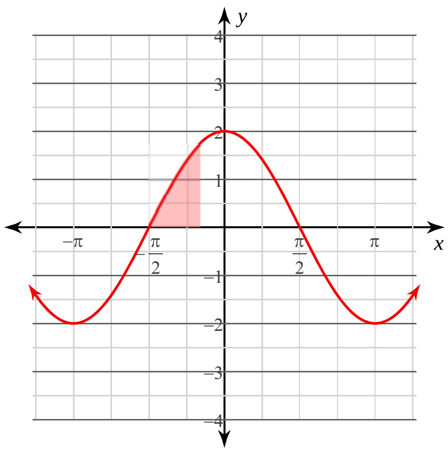

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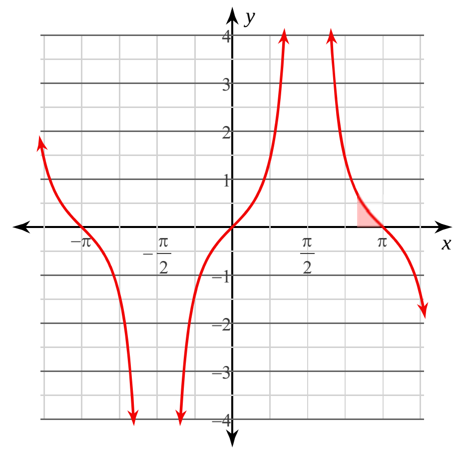

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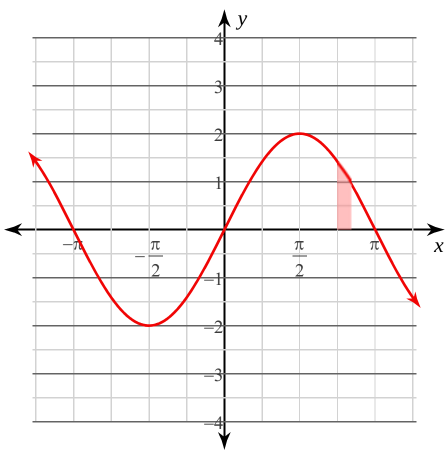

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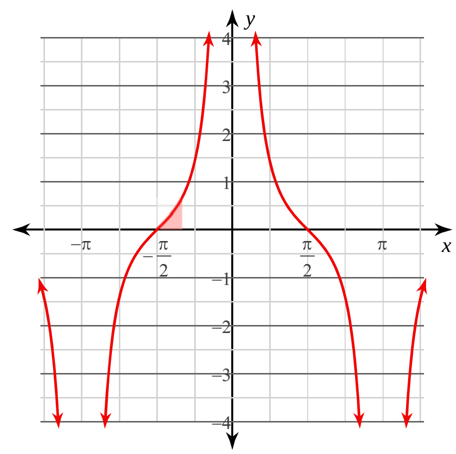

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