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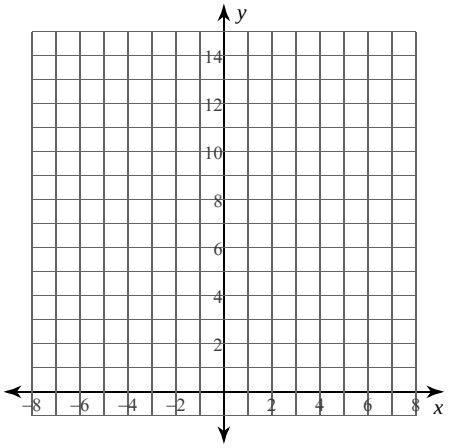
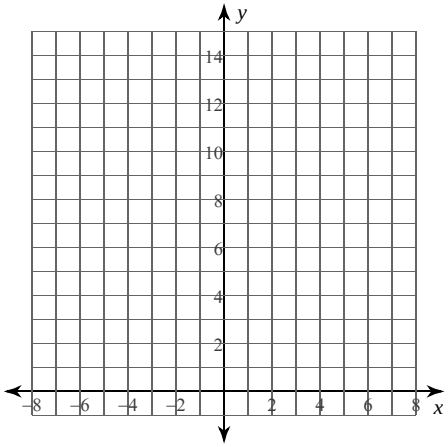
Calculus Practice: Using Definite Integrals to Calculate Area 1b

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.

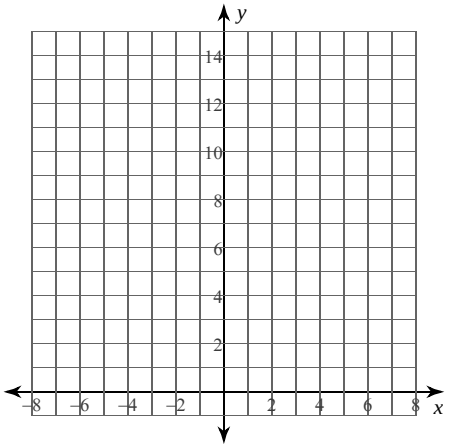
1) $y = x^2 + 8x + 18;\ [-5, -1]$



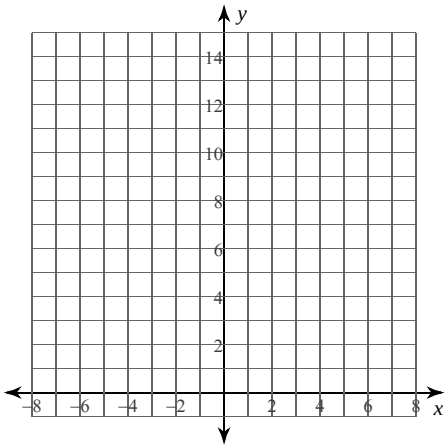
2) $y = \frac{2}{x};\ [1, 4]$



3) $y = \sqrt{x};\ [5, 6]$



4) $y = \frac{1}{x^2};\ [-4, -1]$



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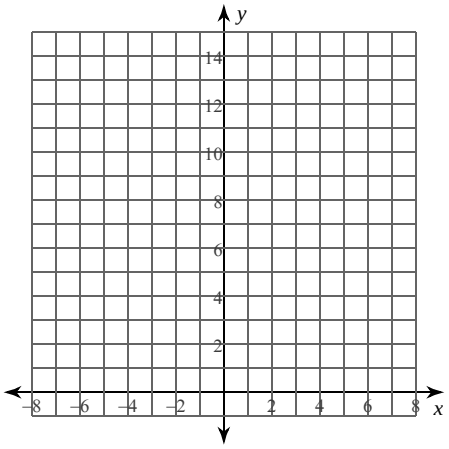
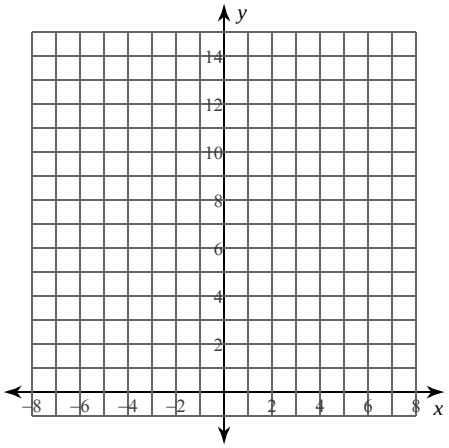
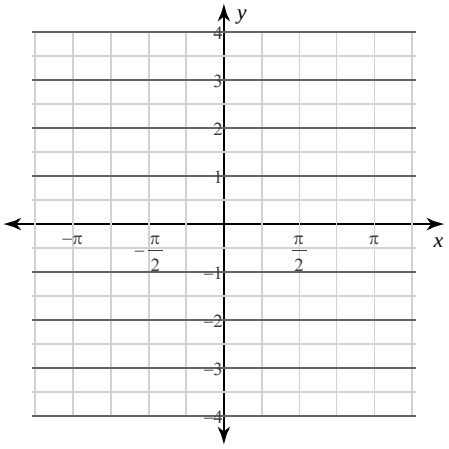
5) $y = 2\sqrt{x}$; [6, 7]



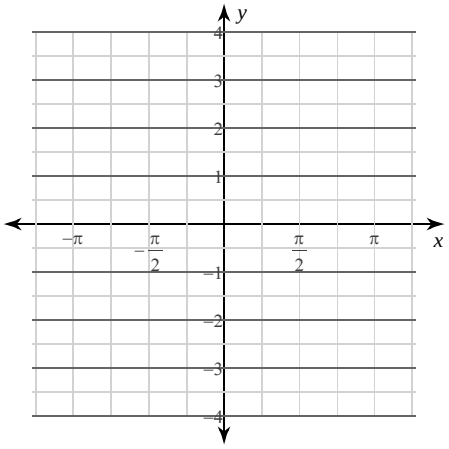
6) $y = \frac{x^2}{2} - 4x + 10$; [1, 6]



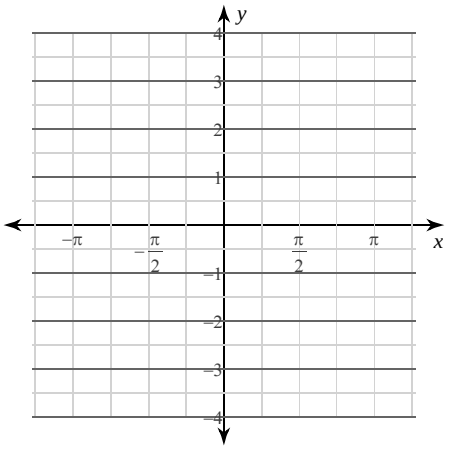
7) $y = \sin x$; $[\frac{3\pi}{4}, \pi]$



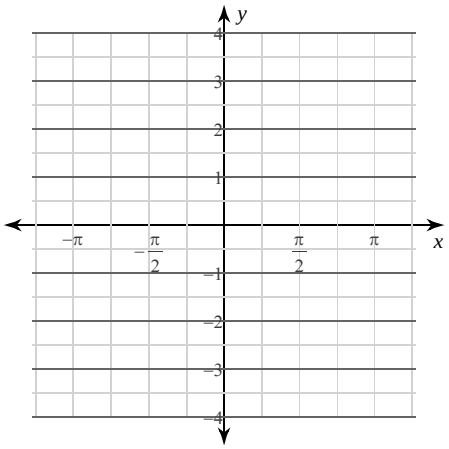
8) $y = 2\cos x$; $[-\frac{\pi}{4}, \frac{\pi}{3}]$



9) $y = \sec x \tan x$; $[0, \frac{\pi}{4}]$



10) $y = -\csc x \cot x$; $[\frac{\pi}{2}, \frac{3\pi}{4}]$



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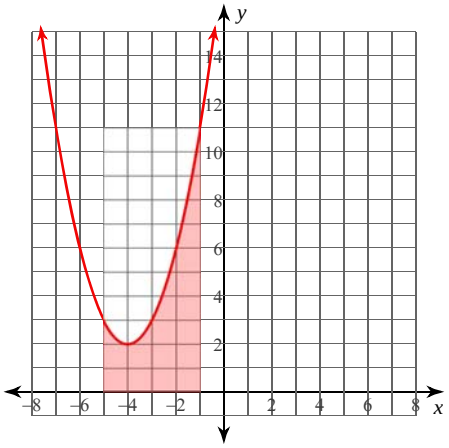
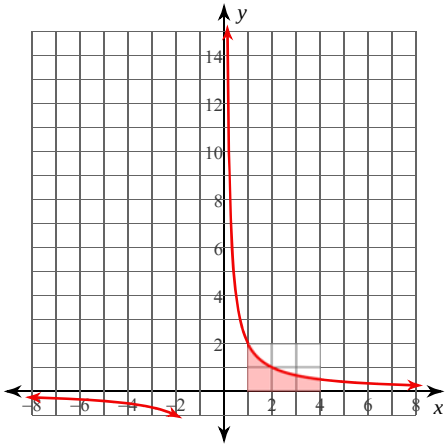


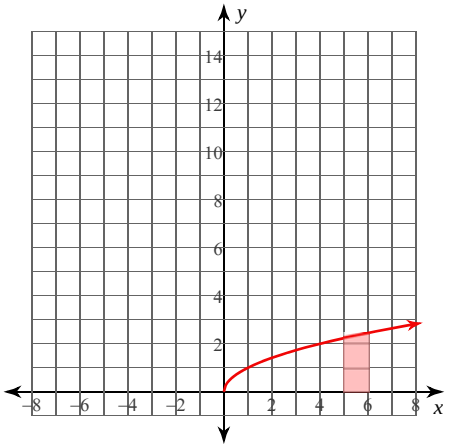
$\frac{52}{3} \approx 17.333$

2) $y = \frac{2}{x};\ [1, 4]$



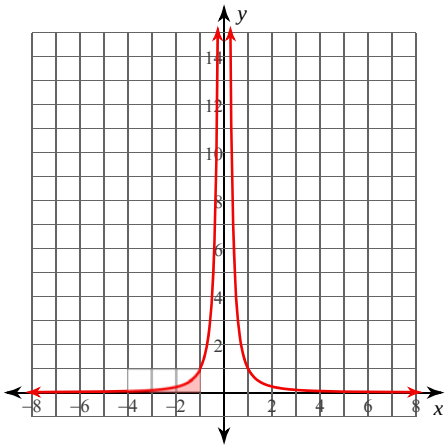
$2 \ln 4 \approx 2.773$

3) $y = \sqrt{x};\ [5, 6]$



$\frac{2\left(6\sqrt{6} - 5\sqrt{5}\right)}{3} \approx 2.344$

4) $y = \frac{1}{x^2};\ [-4, -1]$



$\frac{3}{4} = 0.75$

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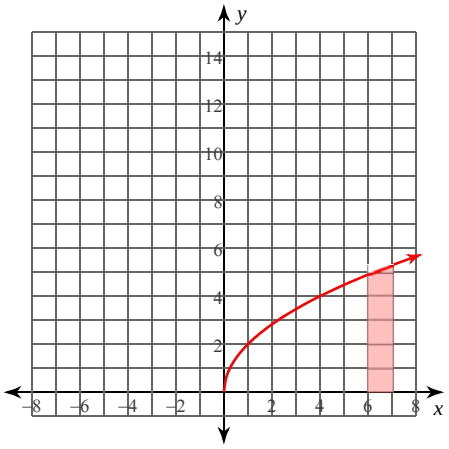
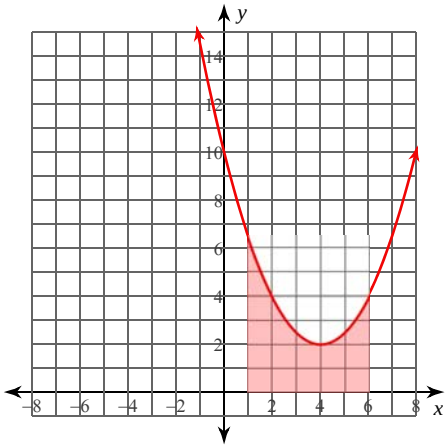
5) $y = 2\sqrt{x}$; $[6, 7]$



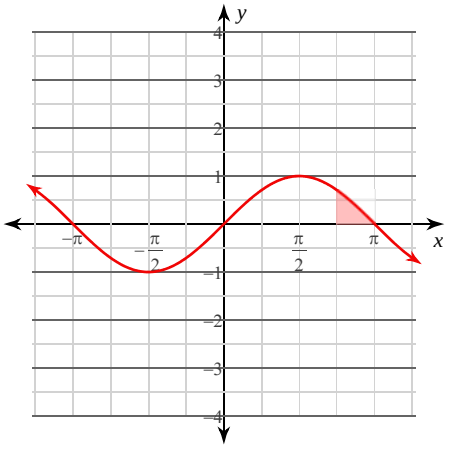
$\frac{4\left(-6\sqrt{6}+7\sqrt{7}\right)}{3} \approx 5.098$

6) $y = \frac{x^2}{2} - 4x + 10$; $[1, 6]$



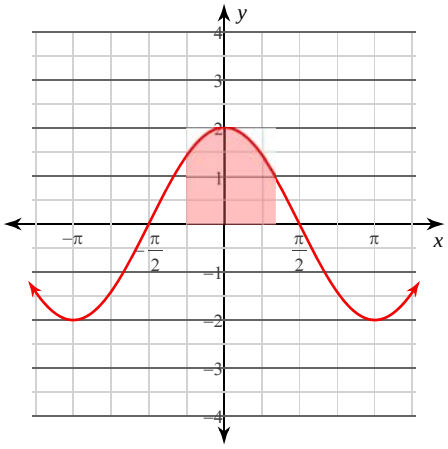
$\frac{95}{6} \approx 15.833$

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



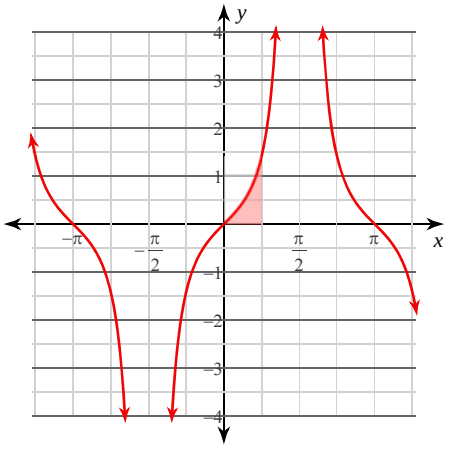
$\frac{2-\sqrt{2}}{2} \approx 0.293$

8) $y = 2\cos x$; $[-\frac{\pi}{4}, \frac{\pi}{3}]$



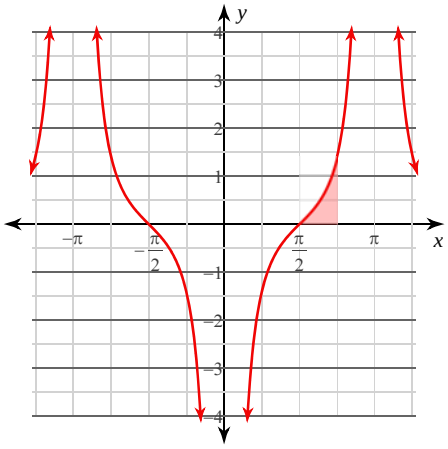
$\sqrt{3} + \sqrt{2} \approx 3.146$

9) $y = \sec x \tan x$; $[0, \frac{\pi}{4}]$



$\sqrt{2} - 1 \approx 0.414$

10) $y = -\csc x \cot x$; $[\frac{\pi}{2}, \frac{3\pi}{4}]$



$\sqrt{2} - 1 \approx 0.414$

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