Name_____

Area Under a Curve

Date_____ Period____

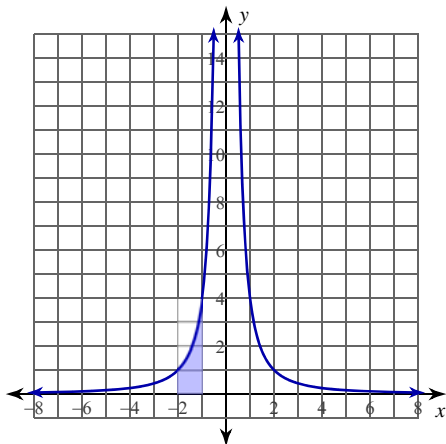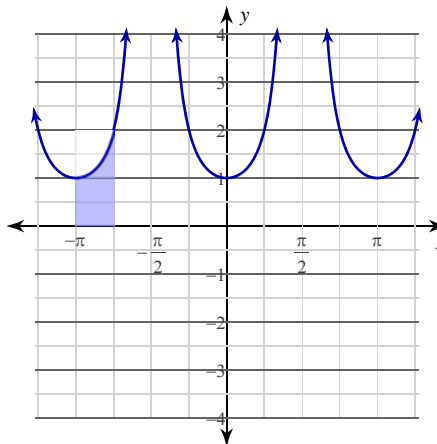**For each problem, find the area under the curve over the given interval.**
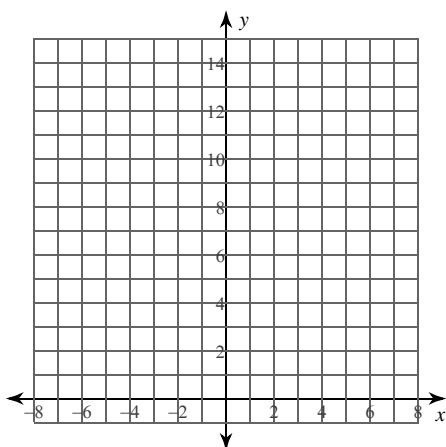
1) $y = \dfrac{4}{x^2}$; $[-2, -1]$

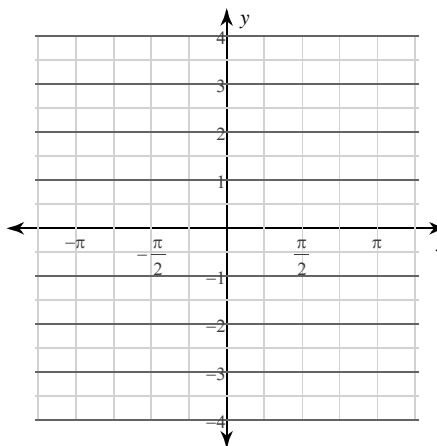2) $y = \sec^2 x$; $[-\pi, -\dfrac{3\pi}{4}]$

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.

3) $y = \sqrt{x}$; $[4, 5]$

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

Name_____

Area Under a Curve

Date_____ Period_____

For each problem, find the area under the curve over the given interval.

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

$$\int_{-2}^{-1} \frac{4}{x^2}\, dx$$
$$= 2$$

2) $y = \sec^2 x;\ [-\pi, -\dfrac{3\pi}{4}]$

$$\int_{-\pi}^{-\frac{3\pi}{4}} \sec^2 x\, dx$$
$$= 1$$

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.
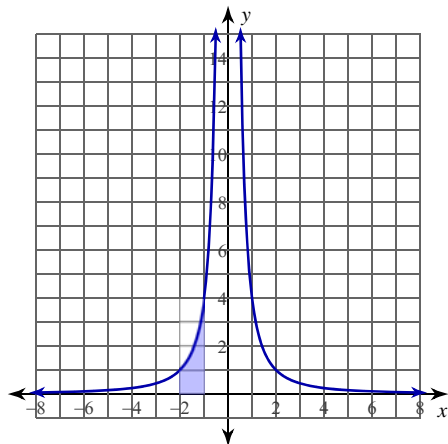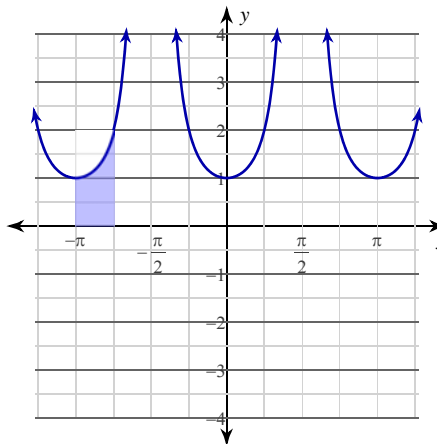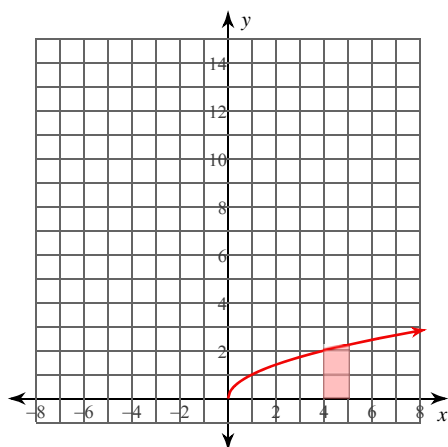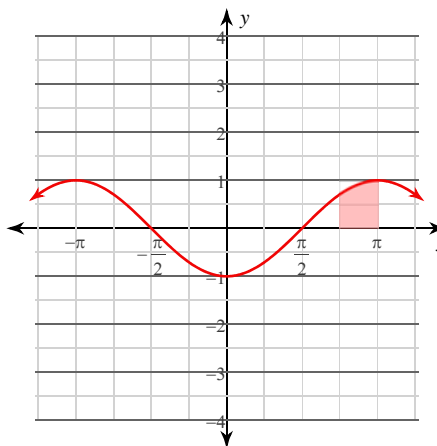
3) $y = \sqrt{x};\ [4, 5]$

$$\int_{4}^{5} \sqrt{x}\, dx$$
$$= \frac{2(5\sqrt{5} - 8)}{3} \approx 2.12$$

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

$$\int_{\frac{3\pi}{4}}^{\pi} -\cos x\, dx$$
$$= \frac{\sqrt{2}}{2} \approx 0.707$$