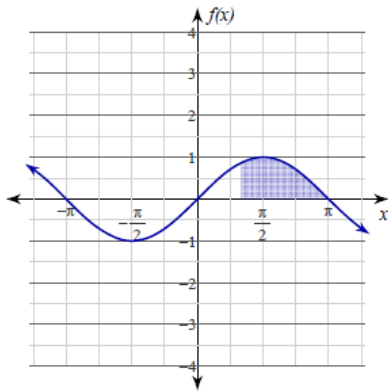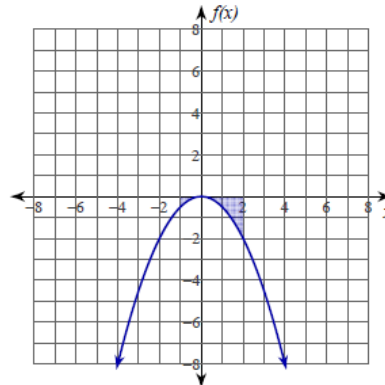# Definite Integration … Set 2

Evaluating Definite Integrals

Evaluate each definite integral. Note: For problems 1-4, compare your numerical answer to the area shown to see if it makes sense. Remember, the definite integral represents the area between the function and the x-axis over the given interval. Area above the x-axis is positive. Area below the x-axis is negative.
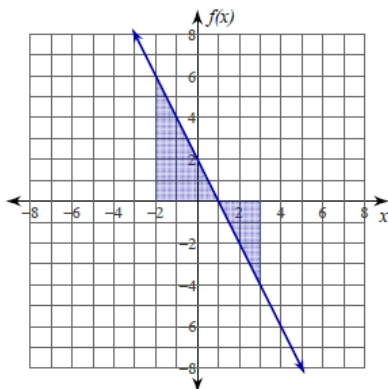
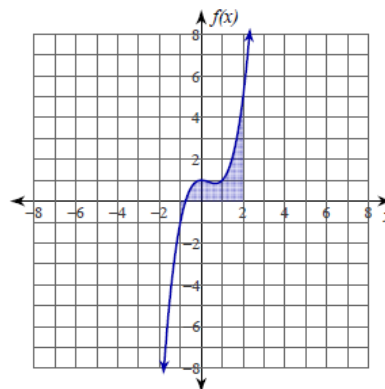1) $\displaystyle \int_{\frac{\pi}{3}}^{\pi} \sin x \, dx$

2) $\displaystyle \int_{-1}^{2} -\frac{x^2}{2} \, dx$

3) $\displaystyle \int_{-2}^{3} (-2x + 2) \, dx$

4) $\displaystyle \int_{-1}^{2} (x^3 - x^2 + 1) \, dx$

Answers

Evaluating Definite Integrals

1) $\dfrac{3}{2} = 1.5$

2) $-\dfrac{3}{2} = -1.5$

3) 5

4) $\dfrac{15}{4} = 3.75$

5) $\displaystyle\int_{-3}^{2} (-x - 1)\, dx$

6) $\displaystyle\int_{-3}^{1} (2x + 2)\, dx$

7) $\displaystyle\int_{0}^{3} (-2x^2 + 4x + 2)\, dx$

8) $\displaystyle\int_{-2}^{2} 5x^{\frac{1}{3}}\, dx$

9) $\displaystyle\int_{\frac{\pi}{6}}^{\frac{\pi}{2}} -\sin x\, dx$

10) $\displaystyle\int_{-1}^{0} e^x\, dx$

Answers

Evaluating Definite Integrals

5) $-\dfrac{5}{2} = -2.5$

6) 0

7) 6

8) 0

9) $-\dfrac{\sqrt{3}}{2} \approx -0.866$

10) $\dfrac{e-1}{e} \approx 0.632$