Name _____ Date _____

Cavalieri's Principle - Independent Practice Worksheet

Complete all the problems. Make sure to draw pictures to help you solve the problems.

1. Calculate the volume of the "globe" with circular cross-sectional area equal to $\Pi\sqrt[12]{x^4}$ above x in the interval [0, 1].

2. Calculate the volume of the "ball" with circular cross-sectional area equal to $\Pi\sqrt[6]{x^8}$ above x in the interval [0, 1].

3. Calculate the volume of the "egg" with circular cross-sectional area equal to $\Pi\sqrt[14]{x^3}$ above x in the interval [0, 1].

4. Calculate the volume of the "lemon" with circular cross-sectional area equal to $\Pi\sqrt[18]{x^4}$ above x in the interval [0, 1].

5. Calculate the volume of the "coin" with circular cross-sectional area equal to $\Pi\sqrt[8]{x^5}$ above x in the interval [0, 1].

6. Let A(x) = $\sqrt[12]{x^3}$ describes the area of a cross-section of a block at *x* (perpendicular to the *x*-axis). Find the volume of block from *x*=0 to *x*=1.

7. Let A(x) = $\sqrt[5]{x^9}$ describes the area of a cross-section of a stone at *x* (perpendicular to the *x*-axis). Find the volume of stone from *x*=0 to *x*=1.

8. Let A(x) = $\sqrt[10]{x^4}$ describes the area of a cross-section of a brick at *x* (perpendicular to the *x*-axis). Find the volume of brick from *x*=0 to *x*=1.

9. Let A(x) = $\sqrt[11]{x^6}$ describes the area of a cross-section of a ice at *x* (perpendicular to the *x*-axis). Find the volume of ice from *x*=0 to *x*=1.

10. Let A(x) = $\sqrt[9]{x^{11}}$ describes the area of a cross-section of a cake at *x* (perpendicular to the *x*-axis). Find the volume of cake from *x*=0 to *x*=1.