17. The vases have the same height and the same cross-sectional area at every height. By Cavalieri's Principle, the volumes are equal.

18. Talisa should make the radius 3.3 ft.

19. Use 945 g of plant food.

20. approximately 1.95 mm

21. The trapezoidal ditch holds the greater volume of water. The volume of the trapezoidal ditch is $\frac{1}{2}(40+60)(30)(12) = 18,000$ in.^{3} while the volume of the half cylinder ditch is $\frac{1}{2}\pi(30)^2(12) \approx 16,965$ in.^{3}.

22. 17 bags

23. No; the inner radius of the pool is 3 ft 8 in., or about 3.67 ft. The pool holds $V = \pi(3.67)^2(3) \approx 126.9$ ft^3 of water, or about $V = 126.9(7.48) \approx 949$ gallons of water. It will take Ines about $949 \div 24 \approx 39.5$ minutes to fill the pool, which is longer than half an hour.

24. Yes; the volume of the box is $V = (6.5)(3.5)(9.25) \approx 210$ in.^{3}. If the box is 80% full, the volume of cookies needed is $0.8(210) = 168$ in.^{3}. Each cookie has a volume of $V = \pi(1.5)2(0.5) \approx 3.5$ in.^{3}. So, $168 \div 3.5 = 48$ cookies are needed for each box. If each cookie contains 12 chocolate chips, $48(12) = 576$ chocolate chips are needed for the box. Therefore, 600 chocolate chips per box is sufficient.

25. **a.** h = 4.5 cm

   b. d = 6 cm

26. (B) 8 yd