

Self-Test 2, Page 465

1. 88; 616 2. 81π 3. a. 6π b. 36π c. $36\pi - 72$ 4. 16:49 5. 2:3 6. a. 4:9 b. 3:2
 7. $64 - 16\pi$ 8. $36\pi - 27\sqrt{3}$ 9. $\frac{3}{5}$ 10. $\frac{\pi}{4}$

Extra, Page 466

Answers may vary in Exs. 1–8. 1. 55.2 3. 39.7 5. 75.3 7. 178.2

Chapter Review, Page 470

1. 64 3. 18 cm^2 5. 9 7. 7 9. $30 + 4\sqrt{2}$; 52 11. $9\sqrt{3}$ 13. 188.4; 2826 15. $8\pi\sqrt{2}$; 32π
 17. $24\pi + 9\sqrt{3}$ 19. 16π 21. 1:4 23. $\frac{9}{25}$

Cumulative Review, Pages 472–473

1. False 3. False 5. False 7. True 9. True 11. False 13. \parallel , skew 15. -45 17. 5
 19. a sphere with ctr. P and radius 4 cm, along with its interior 21. Key steps of proof: 1. $\triangle ABC \cong \triangle DCB$ (HL) 2. $\angle 1 \cong \angle 2$ (CPCT) 3. $\overline{CE} \cong \overline{BE}$ (Thm. 4-2) 4. $\triangle BCE$ is isos. (Def. isos. \triangle)
 23. Assume temp. that there is a \triangle whose sides have lengths x , y , and $x + y$, then the length of the longest side equals the sum of the lengths of the other two sides. This contradicts the \triangle Ineq. Thm., if 2 sides of a triangle have lengths x and y , then the third side must be greater than $x + y$. Therefore, the temp. assumption must be false. It follows that no \triangle has sides of length x , y , and $x + y$. 25. 5 27. 4.5 29. 17 31. 61
 33. Const. a seg. of length $2x$. Use Const. 13 with $a = y$, $b = 2x$, and $c = x$ to find a seg. with length t ;
 $\frac{y}{2x} = \frac{x}{t}$; $ty = 2x^2$; $t = \frac{2x^2}{y}$. 35. $32\sqrt{6}$ 37. a. 46 b. $\frac{1}{4}$

Chapter 12**Written Exercises, Pages 478–480**

1. 40; 88; 48 3. 3; 54; 90 5. 6, 168, 108 7. 54; 27 9. 10; 600 11. 5; 125 13. 390
 15. 4; 8 17. 240; $240 + 32\sqrt{3}$; $160\sqrt{3}$ 19. 252; 372; 420 21. 180; 228; 216 23. 675 cm^3
 25. 1.8 kg 27. 19 kg 29. $50x^3$; $120x^2$ 31. 198 cm^2 33. ≈ 336 35. $V = Bh = \frac{1}{2}aph =$
 $\frac{1}{2} \cdot \frac{x\sqrt{3}}{6} \cdot 3x \cdot x = \frac{1}{4}x^3\sqrt{3}$ 39. 6 cm

Written Exercises, Pages 485–487

1. 6; $\sqrt{34}$ 3. 25; $\sqrt{674}$ 5. 3; $\sqrt{41}$ 7. 36 9. 192 11. 60; 96; 48 13. 260; 360; 400
 15. 6 cm 17. a. 15 cm; 13 cm b. 384 cm^2 ($V\text{-}ABCD$ is not reg.) 19. Vol. pyr. $= \frac{1}{6} \cdot \text{vol. rect. solid}$
 21. 8; $\sqrt{73}$ 23. a. 3; 6; $6\sqrt{3}$ b. $45\sqrt{3}$; $36\sqrt{3}$ 25. 144; $24\sqrt{39}$ 27. ≈ 66 cubic units 29. $\frac{x^3\sqrt{2}}{12}$
 31. 246

Mixed Review Exercises, Page 487

1. 12π ; 36π 2. 22π ; 121π 3. π ; $\frac{\pi}{4}$ 4. $6\pi\sqrt{3}$; 27π 5. 5; 25π 6. 9; 81π 7. 7; 14π
 8. $\sqrt{15}$; $2\pi\sqrt{15}$ 9. a. $144\pi\text{ mm}^2$ b. 576 mm^2 10. a. 32 b. $8\pi\sqrt{2}$

Written Exercises, Pages 492–495

1. 40π ; 72π ; 80π 3. 24π ; 56π ; 48π 5. 4 7. 48π 9. 5; 20π ; 36π ; 16π
 11. 5; 156π ; 300π ; 240π 13. 12; 9; 324π ; 432π 15. 8; 17; 255π ; 480π 17. a. 1:4 b. 1:4
 c. 1:8 19. 1:3 21. 24 cm 23. 25 min 25. 2 27. a. cyl. with $r = 6$, $h = 10$; $V = 360\pi$
 b. cyl. with $r = 10$, $h = 6$; $V = 600\pi$ 29. a. $270\sqrt{3}$; $180\sqrt{3}$ b. 720; $240\sqrt{2}$ c. $540\sqrt{3}$; 360
 31. cyl. with $r = s$, $h = s$; $V = \pi s^3$ 33. $16\pi\text{ cm}^3$ 35. $18\pi\sqrt{2}\text{ cm}^3$ 37. 60π ; $18\sqrt{91}$ 39. 1200 π