

3. "roof":

$$SA = (4)\left(\frac{1}{2}\right)(8)(9) = 144 \text{ ft}^2$$

sides:

$$SA = (4)(8)(3) = 96 \text{ ft}^2$$

bottom:

$$SA = (8)(8) = 64 \text{ ft}^2$$

total:

$$144 + 96 + 64 = 304 \text{ ft}^2$$

4. c

5. d

6. a

7. e

8. h

9. b

10. j

11. f

12. i

13. g

14. measure of minor arc AB =
 $m\angle AOB = 40^\circ$

15. measure of minor arc ABC =
 $m\angle AOB + m\angle BOC =$
 $40^\circ + 100^\circ = 140^\circ$

16. measure of arc ABCD =
 $m\angle AOB + m\angle BOC + m\angle COD =$
 $40^\circ + 100^\circ + 40^\circ = 180^\circ$

$$\begin{array}{r} 17. \quad X + 4 \\ \times X + 8 \\ \hline 8X + 32 \end{array}$$

$$\begin{array}{r} X^2 + 4X \\ \hline \end{array}$$

$$X^2 + 12X + 32$$

$$\begin{array}{r} 18. \quad X + 5 \\ \times X + 2 \\ \hline 2X + 10 \end{array}$$

$$X^2 + 7X + 10$$

$$\begin{array}{r} 19. \quad X + 3 \\ \times X - 1 \\ \hline -X - 3 \end{array}$$

$$\begin{array}{r} X^2 + 3X \\ \hline \end{array}$$

$$X^2 + 2X - 3$$

$$\begin{array}{r} 20. \quad X - 4 \\ \times X + 6 \\ \hline 6X - 24 \end{array}$$

Lesson Practice 17A

1. $5\sqrt{2} + 3\sqrt{5} = 5\sqrt{2} + 3\sqrt{5}$:
cannot be simplified

2. $8\sqrt{7} + 7\sqrt{7} = 15\sqrt{7}$

3. $12\sqrt{6} - 10\sqrt{6} = (12 - 10)\sqrt{6} = 2\sqrt{6}$

4. $11\sqrt{2} + 3\sqrt{2} + 5\sqrt{2} =$
 $(11 + 3 + 5)\sqrt{2} = 19\sqrt{2}$

5. $\frac{12\sqrt{24}}{6\sqrt{3}} = \frac{12\sqrt{8}}{6} = 2\sqrt{8} =$

$$2\sqrt{4}\sqrt{2} = 2(2)\sqrt{2} = 4\sqrt{2}$$

6. $\frac{25\sqrt{10}}{5\sqrt{5}} = \frac{25\sqrt{2}}{5} = 5\sqrt{2}$

7. $\sqrt{24} = \sqrt{4}\sqrt{6} = 2\sqrt{6}$

8. $\sqrt{300} = \sqrt{100}\sqrt{3} = 10\sqrt{3}$

9. $\sqrt{48} = \sqrt{16}\sqrt{3} = 4\sqrt{3}$

10. $(5\sqrt{3})(6\sqrt{5}) = (5)(6)\sqrt{3}\sqrt{5} = 30\sqrt{15}$

11. $(6\sqrt{6})(7\sqrt{2}) = (6)(7)\sqrt{6}\sqrt{2} =$
 $42\sqrt{12} = 42\sqrt{4}\sqrt{3} =$

$$42(2)\sqrt{3} = 84\sqrt{3}$$

12. $(2\sqrt{3})(2\sqrt{3}) = (2)(2)\sqrt{3}\sqrt{3} =$
 $4\sqrt{9} = 4(3) = 12$

13. $\sqrt{5} \approx 2.24$

14. $\sqrt{3} \approx 1.73$

15. $\sqrt{14} \approx 3.74$

16. radical

17. numbers; radicals

18. square

Lesson Practice 17B

- $6\sqrt{7} + 5\sqrt{3} = 6\sqrt{7} + 5\sqrt{3}$:
cannot be simplified
- $8\sqrt{3} + 5\sqrt{3} = (8+5)\sqrt{3} = 13\sqrt{3}$
- $8\sqrt{7} - 7\sqrt{7} = (8-7)\sqrt{7} = 1\sqrt{7} = \sqrt{7}$
- $13\sqrt{2} + 11\sqrt{2} - 20\sqrt{2} =$
 $(13+11-20)\sqrt{2} = 4\sqrt{2}$
- $\frac{36\sqrt{8}}{6\sqrt{2}} = \frac{36\sqrt{4}}{6} = 6\sqrt{4} = 6(2) = 12$
- $\frac{42\sqrt{10}}{7\sqrt{5}} = \frac{42\sqrt{2}}{7} = 6\sqrt{2}$
- $\sqrt{108} = \sqrt{36\sqrt{3}} = 6\sqrt{3}$
this can also be done
in smaller steps:
 $\sqrt{108} = \sqrt{9\sqrt{12}} = \sqrt{9}\sqrt{4\sqrt{3}} =$
 $(3)(2)\sqrt{3} = 6\sqrt{3}$
- $\sqrt{250} = \sqrt{25\sqrt{10}} = 5\sqrt{10}$
- $\sqrt{180} = \sqrt{36\sqrt{5}} = 6\sqrt{5}$
- $(6\sqrt{7})(-5\sqrt{7}) = (6)(-5)\sqrt{7}\sqrt{7} =$
 $-30\sqrt{49} = (-30)(7) = -210$
- $(6\sqrt{2})(4\sqrt{3}) = (6)(4)\sqrt{2}\sqrt{3} = 24\sqrt{6}$
- $(8)(3\sqrt{20}) = (8)(3)\sqrt{20} = 24\sqrt{20} =$
 $24\sqrt{4\sqrt{5}} = 24(2)\sqrt{5} = 48\sqrt{5}$
- $\sqrt{6} \approx 2.45$
- $\sqrt{11} \approx 3.32$
- $\sqrt{21} \approx 4.58$
- same
- $\sqrt{3}\sqrt{3} = \sqrt{9} = 3$
- whole

Systematic Review 17C

- $4\sqrt{3} + 5\sqrt{3} = (4+5)\sqrt{3} = 9\sqrt{3}$
- $\sqrt{7} + 3\sqrt{7} = 1\sqrt{7} + 3\sqrt{7} =$
 $(1+3)\sqrt{7} = 4\sqrt{7}$
- $16\sqrt{2} - 8\sqrt{2} = (16-8)\sqrt{2} = 8\sqrt{2}$
- $(\sqrt{7})(\sqrt{10}) = \sqrt{70}$
- $(\sqrt{5})(2\sqrt{3}) = 2\sqrt{5}\sqrt{3} = 2\sqrt{15}$

$$6. \frac{\sqrt{28}}{\sqrt{7}} = \frac{\sqrt{4}}{1} = \sqrt{4} = 2$$

$$7. \sqrt{8} = \sqrt{4\sqrt{2}} = 2\sqrt{2}$$

$$8. \sqrt{28} = \sqrt{4\sqrt{7}} = 2\sqrt{7}$$

$$9. 2\sqrt{2} \approx 2.83; 2\sqrt{7} \approx 5.29$$

10. top:

$$V = \text{area of base triangle} \times \text{height} =$$

$$\frac{1}{2}(9)(8) \times 15 = 540 \text{ m}^3$$

bottom:

$$V = (9)(15)(7) = 945 \text{ m}^3$$

total:

$$V = 540 + 945 = 1,485 \text{ m}^3$$

11. "roof":

$$SA = (2)(10)(15) = 300 \text{ m}^2$$

triangles:

$$SA = (2) \frac{1}{2} (9)(8) = 72 \text{ m}^2$$

sides:

$$SA = (2)(7)(15) + (2)(7)(9) =$$

$$210 + 126 = 336 \text{ m}^2$$

bottom:

$$SA = (9)(15) = 135 \text{ m}^2$$

total:

$$SA = 300 + 72 + 336 + 135 = 843 \text{ m}^2$$

$$12. V = \frac{1}{3}Bh = \frac{1}{3}\pi r^2 h \approx$$

$$\frac{1}{3}(3.14)(11^2)(14.3) \approx 1,811.05 \text{ ft}^3$$

$$13. V = \frac{4}{3}\pi r^3 \approx \frac{4}{3}(3.14)(2.4^3)$$

$$\approx 57.88 \text{ in}^3$$

$$14. A = bh = (6)(6) = 36 \text{ in}^2$$

$$15. A = \pi r^2 \approx (3.14)(3^2) = 28.26 \text{ in}^2$$

$$16. A = 36 - 28.26 = 7.74 \text{ in}^2$$

17. TMS

18. vertical

19. alternate interior

20. 70° ; vertical angles

Systematic Review 17D

- $9\sqrt{6} + 23\sqrt{6} = (9+23)\sqrt{6} = 32\sqrt{6}$
- $7\sqrt{2} + 8\sqrt{2} = (7+8)\sqrt{2} = 15\sqrt{2}$
- $\sqrt{7} - 5\sqrt{7} = 1\sqrt{7} - 5\sqrt{7} = (1-5)\sqrt{7} = -4\sqrt{7}$
- $(3\sqrt{6})(2\sqrt{7}) = (3)(2)\sqrt{6}\sqrt{7} = 6\sqrt{42}$
- $(\sqrt{11})(\sqrt{11}) = \sqrt{121} = 11$
- $\frac{2\sqrt{30}}{\sqrt{5}} = \frac{2\sqrt{6}}{1} = 2\sqrt{6}$
- $\sqrt{12} = \sqrt{4}\sqrt{3} = 2\sqrt{3}$
- $\sqrt{200} = \sqrt{100}\sqrt{2} = 10\sqrt{2}$
- $2\sqrt{3} \approx 3.46; 10\sqrt{2} \approx 14.14$
- $V = Bh = \pi r^2 h \approx (3.14)(2^2)(16) = 200.96 \text{ cm}^3$
- $SA = 2\pi r^2 + 2\pi rh \approx (2)(3.14)(2^2) + (2)(3.14)(16) = 25.12 + 200.96 = 226.08 \text{ cm}^2$
- $A = \frac{4+5}{2}(6) = 27 \text{ units}^2$
- $A = \pi r^2 \approx (3.14)(2.4^2) \approx 18.09 \text{ in}^2$
- arc
- interior angle $= 180^\circ - 45^\circ = 135^\circ$
- $540^\circ = (N-2)180^\circ$
 $540^\circ = 180N^\circ - 360^\circ$
 $900^\circ = 180N^\circ$
 $\frac{900^\circ}{180^\circ} = N = 5 \text{ sides}$
- CFD or BFC or AFD: all are 90°
- 5 cm
- ADF: line BD is a transversal cutting lines AD and BC, which are parallel, because they are opposite sides of a rhombus. $\angle CBF$ and $\angle ADF$ are alternate interior angles.
- 30° ; alternate interior angles

Systematic Review 17E

- $5\sqrt{5} + 2\sqrt{2} = 5\sqrt{5} + 2\sqrt{2}$: cannot be simplified
- $3\sqrt{5} + 8\sqrt{5} = (3+8)\sqrt{5} = 11\sqrt{5}$

- $13\sqrt{10} - 15\sqrt{10} = (13-15)\sqrt{10} = -2\sqrt{10}$
- $(5\sqrt{10})(3\sqrt{13}) = (5)(3)\sqrt{10}\sqrt{13} = 15\sqrt{130}$
- $(3\sqrt{8})(2\sqrt{8}) = (3)(2)\sqrt{8}\sqrt{8} = 6\sqrt{64} = 6(8) = 48$
- $\frac{8\sqrt{12}}{2\sqrt{6}} = \frac{8\sqrt{2}}{2} = \frac{4\sqrt{2}}{1} = 4\sqrt{2}$
- $\sqrt{27} = \sqrt{9}\sqrt{3} = 3\sqrt{3}$
- $\sqrt{20} = \sqrt{4}\sqrt{5} = 2\sqrt{5}$
- $3\sqrt{3} \approx 5.20; 2\sqrt{5} \approx 4.47$
- $V = \frac{1}{3}Bh = \frac{1}{3}(21)(21)(13) = 1,911 \text{ mm}^3$
- triangles:
 $SA = (4)(\frac{1}{2})(21)(15) = 630$
 base:
 $SA = (21)(21) = 441$
 total:
 $SA = 630 + 441 = 1,071 \text{ mm}^2$
- $A = bh = (11)(8) = 88 \text{ units}^2$
- $C = \pi d \approx (3.14)(6.4) \approx 20.10 \text{ in}$
- isosceles
- interior angle $= 180^\circ - 72^\circ = 108^\circ$
- $360^\circ \div 72^\circ = 5 \text{ sides}$
- $x^2 + 10x + 16 = (x+8)(x+2)$
- $x^2 + 5x + 6 = (x+2)(x+3)$
- $x^2 + 8x + 7 = (x+7)(x+1)$
- $x^2 + 9x + 20 = (x+5)(x+4)$

Lesson Practice 18A

- right
- legs
- hypotenuse
- Pythagorean