Chapter 10 Extra Practice Answers

1. $P = 3 \cdot 8\text{ ft} = 24$ feet

$\text{Area} = \frac{1}{2} \cdot 8 \cdot 8 \cdot \sin 60° = 27.71\ \text{ft}^2$

2. $P = 9 + 4 + 5 + 7 = 25\text{ m}$

$A = \frac{1}{2}(9+5)\,4 = 28\ \text{m}^2$

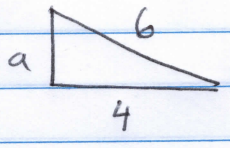
3. $P = 2(15+13) = 56\text{ ft}$

$A = 15 \cdot 12 = 180\ \text{ft}^2$

4. $P = 13 + 17 + 17 = 47\text{ m}$

$A = \frac{1}{2} \cdot 17 \cdot 12 = 102\ \text{m}^2$

5. P, use Pythag. Thm.



$a^2 + 4^2 = 6^2$

$a = \sqrt{20} = 2\sqrt{5} \approx 4.47$ yd.

$P = 4.47 + 4 + 6 = 14.47$ yd.

$\text{Area} = \frac{1}{2} \cdot 4 \cdot (4.47) = 8.94$ yd.

6. $P = 2(19 + 24) = 86$ in

$A = 16 \cdot 24 = 384$ in^2

7. $A = 4(3)^2 \sin\frac{180}{4} \cdot \cos\frac{180}{4} = 18$ cm^2

8. $A = \frac{1}{2}(5 + 9) \cdot 6 = 42$ in^2

9. $A = \frac{1}{2} \cdot 4 \cdot 4 \cdot \sin 60° = 6.93$ mm^2

10. $A = 6(9)^2 \tan\frac{180}{6} = 280.59$ ft^2

11. $A = \frac{1}{2}(80 + 125) \cdot 54 = 5535$ ft^2

12. $A = \frac{1}{2} \cdot 90 \cdot 75 = 3375$ in^2

13. $A = 6\left(\frac{5}{8}\right)^2 \sin\frac{180}{6} \cdot \cos\frac{180}{6} = 1.01$ in^2

14. $A = 6(16)^2 \sin\frac{180}{6} \cdot \cos\frac{180}{6} = 665.11$ ft^2

15. $R = \frac{8}{6} = \frac{4}{3}$

R of areas $= \left(\frac{4}{3}\right)^2 = \frac{16}{9}$

16. $R = \frac{9}{6} = \frac{3}{2}$

R of areas $= \left(\frac{3}{2}\right)^2 = \frac{9}{4}$

17. $R = \frac{15}{5} = 3$

Ratio of areas $= (3)^2 = 9$

18. Area $= \left(\frac{4}{3}\right)^2 (315) = 560 \text{ in}^2$

20. $A = \frac{1}{2} \cdot 10 \cdot 8 \cdot \sin 73° = 32.25 \text{ ft}^2$

21 $A = \frac{1}{2} \cdot 16 \cdot 12 \cdot \sin 59° = 82.29 \text{ in}^2$

22 $A = \frac{1}{2} \cdot 9 \cdot 25 \cdot \sin 46 = 80.93 \text{ cm}^2$

23. $A = \frac{1}{2} \cdot 48 \cdot 55 \cdot \sin 30° = 660 \text{ m}^2$

24. $A = 6\left(8\sqrt{3}\right)^2 \tan \frac{180}{6} = 665.11 \text{ ft}^2$

25. $A = 8(6)^2 \sin\frac{180}{8} \cos\frac{180}{8} = 101.82 \text{ ft}^2$

26. $C = 18\pi$ cm

$L = \frac{120^\circ}{360^\circ} \cdot 18\pi = 6\pi$ cm

27. $C = 24\pi$ ft

$L = \frac{30}{360} \cdot 24\pi = 2\pi$ ft

28. $C = 24\pi$ cm

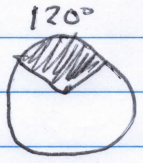
$L = \frac{1}{4} \cdot 24\pi = 6\pi$ cm

29. $C = 16\pi$ in

$L = \frac{225}{360} \cdot 16\pi = 10\pi$ in

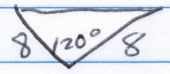
31. $A = \frac{120^\circ}{360}(9)^2\pi = 27\pi$

32. Find area of sector



$A = \frac{120}{360} \cdot 8^2 \pi = \frac{64}{3}\pi = 67.02$

Find area of triangle



$A = \frac{1}{2} \cdot 8 \cdot 8 \cdot \sin 120° = 27.71$

Subtract: $67.02 - 27.71 = 39.31 \text{ in}^2$

33. $A = \frac{45}{360} \cdot (16)^2 \pi = 32\pi \text{ cm}^2$

34. Find area of sector

$A = \frac{1}{4}(5)^2 \pi = 6.25\pi$

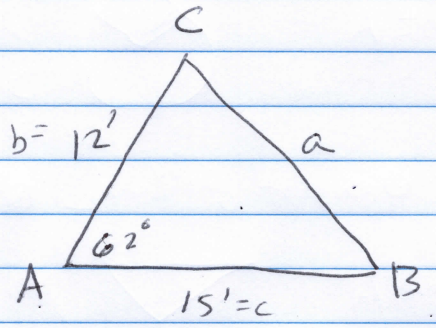
Find area of triangle

$A = \frac{1}{2}(5)(5) = 12.5$

Subtract: $6.25\pi - 12.5 = 7.13 \text{ m}^2$

35. $A = \frac{1}{8}(7)^2\pi = 6.125\pi = 19.24\ in^2$

36.



$a^2 = 12^2 + 15^2 - 2(12)(15)(\cos 62^\circ) = 199.99$

$a = 14.14$

$12\left(\frac{\sin B}{12}\right) = \left(\frac{\sin 62}{14.14}\right)12$

$\sin B = 0.7493$

$B = 48.53^\circ$

$\angle C = 180 - 62 - 48.53 = 69.47^\circ$

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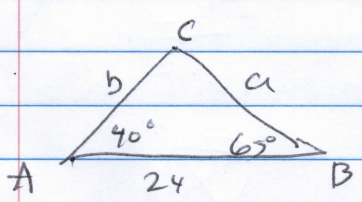

$\angle C = 180 - 40 - 65 = 75^\circ$

$\frac{a}{\sin 40^\circ} = \frac{24}{\sin 75^\circ}$

~~$a = 16.05$~~ m

$a = 15.97$ m

$\frac{b}{\sin 65^\circ} = \frac{24}{\sin 75^\circ}$

$b = 22.52$ m